

Suspended PNL head accepts new post

by Annabel Ferriman

A chapter in the history of the Polytechnic of North London closed this week when it was announced that Mr W. J. P. Jenkins, head of the business studies department, had agreed to accept alternative work in the polytechnic.

The announcement appears to end four years of bitter disagreement and acrimony between Mr Jenkins and the polytechnic's directors, in which two attempts were made to remove him from his position as head of department.

Trouble began in July, 1972, when Mr Terence Miller, director of the polytechnic, suspended Mr Jenkins because of alleged irregularities in examination procedures. A committee of inquiry was set up to look into the allegations. It found that there had been "serious irregularities in the preparation of returns submitted to the Joint Committee for National Awards in Business Studies". There were a "significant" number of cases in which marks submitted to the joint committee differed from those produced by the subject teacher.

Mr Jenkins was reinstated in October, 1972, as head of the department, but with a supervisory committee to oversee the department's activities.

Mr Miller tried to remove him from his position again in May, 1973, but the Court of Governors decided to postpone any decision until the supervisory committee reported. The report appeared in October, 1973, but no further action was taken.

Now, following a long period of calm when the activities of the department have been out of the news for almost a year, the polytechnic has issued a statement saying that Mr Jenkins has stepped down.

It says: "Following discussions between the chairman and vice-chairman of the Court of Gover-

nors, Mr W. J. P. Jenkins and the National Association of Teachers in Further and Higher Education, Mr Jenkins has been offered alternative work within the polytechnic. This offer has been accepted by him and details are being discussed. He will cease to be head of the department of business studies on September 24, 1976, and suitable alternative arrangements are being made for the supervision of the department."

Mr John Pannone, the chairman of the governors, said this week that the agreement was a very "amicable and friendly arrangement", in which all had been satisfied.

He and several senior members of the polytechnic staff were very keen not to depart in any way from the wording of the statement or to give any details as to the reasons why Mr Jenkins agreed to step down.

It is believed that the negotiations resulted from a disagreement between Mr Jenkins and Mr Miller over the appointment of a law lecturer to the department.

Mr Jenkins wanted the job to go to a lecturer who had taught part-time in the department for about 12 years, but he was overruled. Mr Jenkins was not willing to accept the decision.

Mr Aidan Pettit, president of the students' union, intends to raise the matter at the next Court of Governors meeting in December and intends to canvass members of the court to see whether an emergency meeting could be called before that.

"There are so many unanswered questions. Why, if Mr Jenkins has been a bad head of department, was he not sacked? Why, if he has been a good head, has he been offered other work? Why was the Court of Governors not consulted? I find it very disturbing."

Mr Jenkins, who is 58, was not available for comment.

Staff-student ratio reviewed at Lanchester

by Sue Reid

Two opposing plans for changing the staff-student ratio at Lanchester Polytechnic over the next four years are to be reconsidered soon by the college and by education officers at Warwickshire County Council and Coventry City Council.

The plans, first debated by the polytechnic governors last week, have been prepared by the college's academic board and by the two councils, which jointly administer the polytechnic.

The first, which is produced by the college, calls for a 10 per cent reduction in staff between now and 1980 with a corresponding change in the staff-student ratio from the current 1:7.2 to 1:10 (THE TIMES, September 24). It says redundancies may be necessary.

The second, produced by the academic board, suggests a staff-student ratio of 1:9 by 1980, in line with the Government's norm, and outlines methods of avoiding any redundancy.

Both plans will be discussed jointly by the polytechnic and the county officers. They are expected to report back to the governors before consultations with the polytechnic staff and the teaching unions.

The governors issued a statement to the polytechnic staff after last week's meeting which stressed that there was no need for alarm. The statement said that the predicted student numbers at the polytechnic might exceed expectations, and so staff-student ratio changes could be achieved relatively painlessly.

New Adelaide v-c named



Professor Donald Stranks

Professor Donald Stranks has been appointed vice-chancellor of the University of Adelaide, Australia. He takes over in March from Professor Geoffrey Badger, the present vice-chancellor.

Professor Stranks, who is 47, was professor of inorganic chemistry at Adelaide from 1964 to 1972. He was born in 1929 and was educated at Melbourne High School and Melbourne University.

£1m Shakespeare extension blocked

Stratford-upon-Avon district council has refused Birmingham University planning permission for a £1m extension to their "Shakespeare" Institute in Stratford.

The decision came at last Wednesday's meeting of the town's development services committee after it had heard objections from several bodies in the town. The extension would have involved the development of accommodation and catering facilities for 15 students, especially during the winter season.

BBC 'should launch scheme to improve adult numeracy'

by Peter Wilby

The BBC ought to consider starting an adult numeracy project on the lines of its adult literacy scheme, it was suggested at a conference this week.

The idea came from Mr Philip Maylor of the Training Services Agency, at a conference on mathematics in education and employment which had been organized jointly by the Institute of Mathematics and its Applications, and by the Brunel University Education Liaison Centre.

Many adults who applied for the courses under the Training Opportunities Scheme, said Mr Maylor, could not even use a ruler. But the prospect of skilled employment was a powerful incentive.

He quoted the case of a young man who watched a motor coming off a lathe and decided he wanted to learn the skill. At that moment he could not use a ruler—but two weeks later, he could use a micrometer.

Mr Maylor said that the mathematics courses of people applying for TOPS courses—the majority of whom were in the 25 to 35 age group—lay in the fields of multiplication tables, manipulation of vulgar fractions, multiplication and division of decimals, and the understanding of circles.

Some did not understand the meaning of mathematical signs; others were unable to form figures properly; and others had no sense of magnitude.

In a multiple choice test of 30 questions given to applicants to TOPS involving the most simple mathematical skills, such as subtracting 46 from 92—the average mark was 19.6. Nearly a fifth of those who took the test got less than half marks.

Mr Maylor said: "This test is simple, but shows which used to be presented in the 1950s. Since it is a multiple choice test, they could score six by the laws of chance."

Another speaker at the conference, Mr Bob Lindsay of the Shell

Centre for Mathematical Education at Nottingham University, said that the adult literacy scheme is already teaching mathematics to some adults.

"They come to the unit because they want to, and no one else is forcing them", he said.

Mr Colin Winter of the education department said he needed to break into the learning cycle—the cycle of learning, doing, and then learning again—and less computer-like and more humanistic and more relevant to their pupils and to the generation of today.

Mr Winter said that teachers could acquire basic skills in mathematics if they were regarded as students of training courses. He suggested that this year's grant for supporting education courses at colleges, "too perceptive about the basic skills—they had been concerned with academic and even graduate studies."

Dr John Newby, of the mathematics department, said that the mathematics department was increasingly high level in its mathematical competence. This was a result of the undergraduate biology course.

"At present we are successful," he said, "in psychological and educational terms. Most biology students like maths and dropped it as possible at school."

The slope from mathematics to understanding of mathematics is the understanding of mathematics. It is a multiple choice test, they could score six by the laws of chance."

Another speaker at the conference, Mr Bob Lindsay of the Shell

New exhibition centre 'may bring 9,000 extra jobs'

The National Exhibition Centre in Birmingham could lead to as many as 9,000 extra jobs in the Birmingham area, according to the first stage of a study on its likely future impact.

The study is being carried out on behalf of the Department of the Environment by the joint unit for research on the urban environment at Aston University.

It has estimated that the benefits from visitors and exhibitors spending was about £3m during the centre's first year, which supported the equivalent of some 3,250 full-time jobs.

If the centre is successful, the study team suggests that the income associated with it could in some circumstances be used to support between 6,500 and 9,000 jobs.

These estimates will only be realized, however, if a greater proportion of the money spent at the exhibitions goes to the West Midlands. The region must be more

attractive to visitors, and exhibitors contracts for the exhibition stands, most of which are now being done at present go to firms in London area, says the report.

The study team says the centre has stimulated development in the hotel and catering facilities, and it seems likely that pressure for such development continues.

It notes that planning for building hotels near the centre has been needed by the city centre has needed by the team was not to be a period of accommodation short in the city and that the full potential of the centre will be best if the close accommodation is available overnight in London area rather than travel to Birmingham within the region.

The next stage of the study will be to look at the impact of the centre's use of public transport on local land use policy.

The next stage of the study will be to look at the impact of the centre's use of public transport on local land use policy.

Robinson College objection quashed

Objections to the design of Cambridge's Robinson College by local residents living near its proposed site have been overruled by the local authority.

The authority approved architects' plans for the building despite the objections from the local residents living near the site of the college in north-west Cambridge and, although the college is expected to be settled soon.

NEXT WEEK

Gerry Webster on development biology
Clive Kilmister on Wittgenstein's philosophy of mathematics
Profile of Brian Grounwright

October 8, 1976. No. 259



Professor John Ashworth

head of the department of biology at Essex University, has been appointed as a scientist in the Cabinet Office's Central Policy Review Staff. Professor Ashworth, aged 37, will be on a two-year secondment.

Oxford v-c warns on annual grant

Universities would have to get used to the difficulties of living with an annual government grant, Sir John Habakkuk, vice-chancellor of Oxford University, warned in his fourth and last annual speech to the Congregation. For 1976-77, at least the amount given to the university would be given by SSRC subject panels are for work examining particular Government policies notably in social policy.

A sub-committee of the council composed of Mr Derek Robinson, its chairman, Mr Humphrey Cole, a Department of the Environment economist, and Mr W. G. Runciman, fellow of Trinity College, Cambridge and a leading sociologist will be asked to advise the SSRC's research initiatives board in December with a view to a decision by the council in January on the competing proposals for a policy studies centre likely to be before it.

Their brief is first to decide whether there is scope for SSRC involvement in the policy studies field—few members of the council disagree—and second to find the best method of responding to proposals. One delicate problem is that a joint proposal will be put to the SSRC by two of its members, Professor Peter Hall of Reading University and Professor Maurice Kogan of Brunel.

Professor Hall, a geographer, who was recently offered the directorship of the Centre for Environmental Studies in succession to Professor

Such assurances would be of the greatest help in making effective use of resources. It was in the nature of universities that they had to make long-term plans. Without some resources it was often impossible for them to do so.

A long-term basis for university finance was therefore of the greatest importance. If not a return to the antiquarianism, then perhaps a role in the future, but in a period of financial stringency, the assurance of a long-term basis would be of great help in making effective use of resources.

Sir John, however, could not see any government in a period of inflation commit itself to a level of support in real terms two or three, or even one, year ahead.

The proposals for a fee of £650 for full-time advanced courses and £750 for part-time courses with corresponding reductions in fees for students with financial difficulties would be a serious problem for the colleges.

The substantial increase in the number of students applying to the colleges of options allowed had led to there being an average of only seven candidates a paper, she said.

Colleges were faced with a major problem in providing for the increase in specialized teaching required, and there was similar pressure on the universities' general board.

Dr Murray was speaking at her installation for a second year of office as vice-chancellor.

When the faculty reviewed its priorities, she said, the outcome was nearly always a new paper, or the

SSRC plans watch on Government policy performance

by David Walker

The Social Science Research Council is likely to launch a major initiative in policy studies next year in the form of a £100,000 annual grant for a centre to analyse the making and implementation of Government policies.

The policy studies centre would probably be based on an existing university department or research institute, perhaps along the lines suggested earlier this year in papers published by Professor Rolf Dahrendorf, director of the London School of Economics.

Though Professor Dahrendorf's proposal to base such a centre at the SSRC is a serious contender for SSRC money, it is understood that members of the council were afraid of the political slant in his diagnosis of "the British predicament". An SSRC-funded centre would be expected to concentrate on the methods of policy analysis since many of the grants given by SSRC subject panels are for work examining particular Government policies notably in social policy.

A sub-committee of the council composed of Mr Derek Robinson, its chairman, Mr Humphrey Cole, a Department of the Environment economist, and Mr W. G. Runciman, fellow of Trinity College, Cambridge and a leading sociologist will be asked to advise the SSRC's research initiatives board in December with a view to a decision by the council in January on the competing proposals for a policy studies centre likely to be before it.

Their brief is first to decide whether there is scope for SSRC involvement in the policy studies field—few members of the council disagree—and second to find the best method of responding to proposals. One delicate problem is that a joint proposal will be put to the SSRC by two of its members, Professor Peter Hall of Reading University and Professor Maurice Kogan of Brunel.

Professor Hall, a geographer, who was recently offered the directorship of the Centre for Environmental Studies in succession to Professor

Such assurances would be of the greatest help in making effective use of resources. It was in the nature of universities that they had to make long-term plans. Without some resources it was often impossible for them to do so.

A long-term basis for university finance was therefore of the greatest importance. If not a return to the antiquarianism, then perhaps a role in the future, but in a period of financial stringency, the assurance of a long-term basis would be of great help in making effective use of resources.

Sir John, however, could not see any government in a period of inflation commit itself to a level of support in real terms two or three, or even one, year ahead.

The proposals for a fee of £650 for full-time advanced courses and £750 for part-time courses with corresponding reductions in fees for students with financial difficulties would be a serious problem for the colleges.

The substantial increase in the number of students applying to the colleges of options allowed had led to there being an average of only seven candidates a paper, she said.

Colleges were faced with a major problem in providing for the increase in specialized teaching required, and there was similar pressure on the universities' general board.

Dr Murray was speaking at her installation for a second year of office as vice-chancellor.

When the faculty reviewed its priorities, she said, the outcome was nearly always a new paper, or the

fees for David Donnison, said this week: "The study of policy is a very important area indeed and the SSRC is the obvious possible source of finance. We do not seem to have been very good in this country at devising policies and anything that might allow us to do better on that score is to be welcomed."

The SSRC's new interest in policy studies stems from a seminar organized by the research initiatives board two months ago which crystallized a growing feeling among academics in sociology, social administration, and politics that co-ordination of existing work and a new high-level study centre were both needed.

A contributor to that seminar, Professor Lewis Gunn of Strathclyde University, spoke of the need for a much more "programmatic" approach to bring together people and projects. He cast the SSRC in the role of a "marriage broker" to remove the wastefulness of competing work. He warned it would be a mistake at this stage to nominate one department at LSE, Birmingham, Brunel, or elsewhere as the only centre for such work.

By contrast, Professor Dahrendorf's April proposal was for a pooling of resources within the LSE concerned with all social science problems that have an immediate bearing on public decision-making. His ideas were warmly received by the school's academic board which set up a committee of investigation.

The research institutes are another part of the question being examined by the Runciman committee. The Centre for Studies in Social Policy, for example, represents a concentration of talent in the policy studies field just as the National Institute for Social and Economic Research fulfils what some economists consider a unique role between university work and the practical concerns of the Treasury.

If the SSRC were to attempt any coordination of policy studies, these centres, along with the Centre for Environmental Studies, Political and Economic Planning would need to be given some place in its scheme.

Criticism of government policy came from Dr Peter Clarke, principal of Robert Gordon's Institute of Technology at Aberdeen. He told the 350-strong conference government had shied away from effective manpower planning, leaving the choices to children, parents and the teachers. He advocated comprehensive manpower planning, based on consultations with education, industry, commerce, and the local government. Without it, the educationists had overreached themselves and been allowed to put forward higher education as a panacea.

"Stimulated by student demand, courses have been introduced and expanded but with little or no assessment of industry's needs and the availability of jobs. Unemployment has risen and the expansion of higher education has led to grave disillusionment all round. Employers are increasingly critical of school leavers and the products of higher education."

A one of the forums organized during the conference the control of the Scottish universities by the Scottish Assembly was considered and found few opponents. One was Mr George Younger, Conservative MP for Ayr, who supported the insistence of the Scottish universities that they go forward on a United Kingdom basis, not as part of the Scottish Assembly.

Dr Murray said that government legislation placed on universities inescapable forms of new spending, without a corresponding addition to funds.

New regulations for fire precautions meant much expensive alteration to buildings.

The universities still retained their autonomy but constraints were multiplying. It was essential that they should be able to speak with one voice and with authority to Government, industry, European organizations and to the general public.

Dr Murray was speaking at her installation for a second year of office as vice-chancellor.

When the faculty reviewed its priorities, she said, the outcome was nearly always a new paper, or the

Scots schools 'let down' by universities

The Scottish universities were subjected to strong criticism for their role in schools at a meeting to discuss the future direction of Scottish education held last week in Edinburgh under the auspices of the Scottish local authorities, the Educational Institute of Scotland and the Scotsman newspaper.

Mr R. E. Bell, senior lecturer in educational studies at the Open University and a well-known critic of the "myths" of Scottish higher education said professors were responsible for producing teachers ill-equipped to handle non-academic children in the schools.

"Far too few professors in Scotland, especially in the arts faculties, have taken seriously or even realized the fact their major function is the production of school teachers, that it is they, the universities, who mould the attitudes of such teachers not merely towards the academic subjects they may later teach but also towards non-academic people as such, that is, the majority of the children they will teach."

Mr Bell said the neglect of educational issues in Scottish universities was reflected by their lack of interest in the academic discipline of education, a field increasingly dominated by English universities. He contrasted the neglect of the education of working-class children with the work of medical faculties in the diseases of the working class.

As recently as the late 1960s the social science faculty of Edinburgh University was quite willing to contemplate the extinguishing of educational studies altogether.

"Yet this proposal was being made at the very time when virtually all the English universities were expanding such studies on an unprecedented scale with even the smallest establishing up to five chairs whose function went far beyond teaching postgraduate teacher-trainees, the organization of whose studies is quite often delegated to a senior lecturer and new forms only a relatively minor part of departmental concern."

Mr Bell linked this with the preference of Scottish academics for sending their children to fee-paying schools. The wishes of the universities were given too much weight in the Scottish Certificate of Education board.

Criticism of government policy came from Dr Peter Clarke, principal of Robert Gordon's Institute of Technology at Aberdeen. He told the 350-strong conference government had shied away from effective manpower planning, leaving the choices to children, parents and the teachers. He advocated comprehensive manpower planning, based on consultations with education, industry, commerce, and the local government. Without it, the educationists had overreached themselves and been allowed to put forward higher education as a panacea.

"Stimulated by student demand, courses have been introduced and expanded but with little or no assessment of industry's needs and the availability of jobs. Unemployment has risen and the expansion of higher education has led to grave disillusionment all round. Employers are increasingly critical of school leavers and the products of higher education."

A one of the forums organized during the conference the control of the Scottish universities by the Scottish Assembly was considered and found few opponents. One was Mr George Younger, Conservative MP for Ayr, who supported the insistence of the Scottish universities that they go forward on a United Kingdom basis, not as part of the Scottish Assembly.

Dr Murray said that government legislation placed on universities inescapable forms of new spending, without a corresponding addition to funds.

New regulations for fire precautions meant much expensive alteration to buildings.

The universities still retained their autonomy but constraints were multiplying. It was essential that they should be able to speak with one voice and with authority to Government, industry, European organizations and to the general public.

Dr Murray was speaking at her installation for a second year of office as vice-chancellor.

When the faculty reviewed its priorities, she said, the outcome was nearly always a new paper, or the



C. W. Kilmister discusses Wittgenstein's 1939 lectures on the foundations of mathematics, 16

Developmental biology
Gerry Webster argues that new developments may lead to a conceptual revolution in the subject as a whole, 15

Less means worse
E. G. Edwards on the impact of recent cuts on working class opportunities for higher education, 11;
Is higher education "a special case", leader, 14

Australia's polys
Peter Wilby reports on the progress of the colleges of advanced education, Australia's equivalent of the polytechnics, 9

Third World
Annabel Ferriman describes the help the World University Service gives to the politically and economically deprived students of the Third World, 8

Microform
Patricia Santinelli, Michael Binyon, John Teague, and Richard Fothergill are among the contributors to four special pages on microform publishing, 20-23

Don's Diary
Frank Gould wrestles with the task of sorting out a modular degree at the Polytechnic of Central London, 5

Noticeboard
North American news 12
Overseas news 13
Letters 14
Books 16-19
Classified Index 20

مكتبة الأصل

Teachers support limits on entry to training for their profession

by Sue Reid

The National Association of Schoolmasters-Union of Women Teachers (NAS-UT) has underlined support for the Government's plan to limit the number of students entering teacher training courses.

In a key policy statement the union said that it favoured the current Government target of between 400,000 and 470,000 teachers in service by 1981. The alternative was to adopt the "unfettered" and irresponsible attitude of ending students in three or four year teacher training courses knowing there was no prospect of employment for the majority at the end.

Teachers' unions had to pursue policies based on realism and determination. It would be easy, for propaganda purposes, to pose as the champions of a policy which meant that the number of teachers employed should be expanded regardless of national economic problems.

But it would not be easy to persuade the members of any responsible teachers' union that they should take militant action in pursuit of such policies. Common sense dictated that militant action could not achieve the realisation of such policies in the foreseeable future.

The statement is likely to bring the union's 36,000 membership into conflict with the National Union of Teachers, which is strongly opposed to cuts in teacher training targets, and the Advisory Committee for the Supply and Training of Teachers, whose members have in the past argued for a teacher force of between 500,000 and 600,000 in 1981.

But the association has warned that the number of teachers whose employment was financed by the State Support Grant was an irreducible minimum. Any local authority which was prepared to employ that number of teachers was automatically a possible target for the NAS-UT sanctions.

"In deliberately limiting our ambitions on teacher unemployment to the levels specified by the government itself we feel that we have been showing great restraint. The currently growing pool of unemployed teachers, especially of newly qualified teachers, could well persuade us to be less restrained unless we see early evidence of some remedial measures."

The correct number of teachers to employ in the immediate future inevitably called for an improvement over current staffing levels. Nearly 90 per cent of students who completed teacher training courses at Middlesex Polytechnic this year have found jobs or further study opportunities, according to a sample survey.

Of 60 per cent of the 350 students who gained a teaching qualification in June 96 obtained jobs in secondary schools and 41 in primary schools. A further 29 were returning to complete a BEd degree course.

Call for 4-year engineering courses

University degree courses in engineering should be extended to four years, Dr Wilfred Eastwood, a former professor of engineering at Sheffield University, said this week in his presidential address to the Institution of Structural Engineers.

The extra year was needed for better training in design, small scale research projects and improved "finishing" for students. At the moment the student could just about get through his course with his mouth wired up. The extended course would produce greater maturity and enable the young man to develop "style"—this certainly happens in medicine," Dr Eastwood said.

The extra year had been discussed for some time, though the great expansion of student num-

bers meant resources were inadequate. Now, however, population changes and the downturn of the economy were on the side of those who wanted to make engineering education more like medicine or architecture in its scope.

In the next two or three years we may be faced with overproduction of graduates. It would be better to switch attention to quality rather than quantity. In the first instance it may be necessary to reduce the time that the course is extended as to match the numbers of staff available. But this should only be a temporary situation. For too long we have been reticent about asking for a greater share of resources to teach our young."

Dr Eastwood also wanted reform of course assessment by the profes-

sional bodies. He said that just as the Royal Institute of British Architects inspected courses so might the Council of Engineering Institutions. He had some criticism of the proliferation of postgraduate courses in engineering. To attract students, some had lowered their entry qualifications. The course content had to be matched to the students available with the result that much of degree standard.

"The greatest miscalculation was the extent to which industry would support students for an extra year of postgraduate study. A nucleus of good students and firms gave support but the number of students who have been seconded has tended to diminish rather than to grow."

£85,000 from US for Brunel cancer work

The United States National Foundation for Cancer Research has awarded £85,000 to Brunel University for the development of a new cancer research workshop.

The workshop, the fifth to be formed by the foundation under the direction of Dr Albert Szent-Györgyi, a Nobel prize winner, aims to research the biochemical disturbances in cancer and ultimately to improve treatment.

The grant, to be spread over three years from this autumn, will finance a research team who will work under the direction of Professor Trevor Slater, head of the chemistry department of Brunel University, who has been established at the University College of North Wales in Bangor and in Paris, Miami and New Orleans.

Research will complement studies under way in the biochemistry department and sponsored by the Cancer Research Campaign. But the research team will also collaborate with the existing workshops founded by Dr Szent-Györgyi, who won the Nobel Prize in 1937 for his discovery of ascorbic acid, now known as vitamin C, and for his studies on cellular respiration. He now claims to have evolved a theory which may solve the mystery of cancer.

The National Foundation for Cancer Research has a yearly budget of \$1m. It has 5,000 members and a complex laboratory in Woods Hole, Massachusetts where Dr Szent-Györgyi is based. A radio link between the Bangor workshop and the Massachusetts laboratory is already in use, because the foundation views the research in Britain as a major part of its work.

Professor Slater says the work at the Brunel workshop will centre around studies of normal and cancer cells in culture in relation to biochemical changes in membrane properties.

News in brief

Bristol job for A. J. P. Taylor

A. J. P. Taylor, the historian, has been appointed the first Honorary Visiting Professor at Bristol University. Early this autumn he will take up his new duties, which involve teaching undergraduate students and delivering a series of lectures.

The post has been created with a gift of £250,000 from the estate of the late Benjamin Franklin, who was born in Bristol.

Ealing head appointed

Mr Neil Merritt, professor of Chemistry at Brunel University, has been appointed as head of the new Ealing College of Higher Education in Ealing, London, next month.

The college will be formed through a merger between Ealing Technical College and Ealing College of Art. Mr Merritt was director of Mid-Eastern College before it merged with the College of Education in Ealing. He has also been a visiting professor of history at the University of Indiana, USA.

Overseas students

A handbook advising overseas students on the higher education opportunities in the United Kingdom has been produced by the British Council and the Association of Commonwealth Universities. It gives details of course, admission requirements, study fees, money matters and other matters.

Higher Education in the United Kingdom 1976-77 is available from the British Council, Publications Department, 65 Davies Street, London W1. Price £2.50.

Britain advances claim to EEC atom centre

by David Dickson

Members of the British scientific community are hoping that the research ministers of Common Market countries will decide that the EEC's major fusion research facility should be sited in Britain. Such a decision would not only provide a much needed boost to high energy physics research in Britain, recently subject to severe financial cutbacks, but could also provide a number of jobs for university science and engineering graduates.

The facility is known as the Joint European Torus (JET), and is the centrepiece of a programme designed to investigate the feasibility of harnessing the energy created in the fusion of light atoms such as hydrogen.

Although EEC member countries have agreed on the importance of a joint research programme into the future potential of fusion energy and on many of its technical details, they have so far failed to find a mutually acceptable site for the JET project.

The EEC Commission has recommended, after a detailed survey of possible sites, that the project should be situated at the Common Market's Community Joint Research Centre at Ispra in Northern Italy.

Considerable opposition has, however, been expressed in both political and scientific circles to siting the project at Ispra, including the fact that the laboratory has had no experience in conducting fusion research.

Alternative sites which have been suggested include Garching in West Germany, and the United Kingdom's Atomic Energy Authority's Culham Laboratories near Oxford, where design work for the facility has already been carried out.

Unless a decision on the site is reached at a meeting due to be held on October 21, the Council of Ministers has threatened to take the whole project out of the hands of the research ministers.

The choice of Culham for the project is being heavily canvassed by the British Government, who will be represented at this month's meeting by Mr Alexander Baddeley, Parliamentary Under-Secretary at the Department of Energy.

The Government's support is based not only on the fact that Culham already possesses considerable experience in the relevant fields of science and technology, but also that Britain has so far failed to have been selected for the siting of a major EEC research facility.

Although one of the suggested advantages of Ispra is that there is an international school attached to the site for the children of research staff, the Department of Education and Science has already been investigating the possibility of establishing a similar school at Culham.

The German Government has been pressing the claims of its own site at Garching, but there is a feeling among scientists that now Germany's election campaign is over, it will be easier for the Germans to drop their proposal and put their weight behind the British.

Alternative sites which have been suggested include Garching in West Germany, and the United Kingdom's Atomic Energy Authority's Culham Laboratories near Oxford, where design work for the facility has already been carried out.

Unions asked to protest over cuts

by David Walker

Teachers' unions in the South East will be asked to take part in a week of protest in November against education cuts.

Organized by the South East Regional Council of the TUC, it will coincide with the Education Week, arranged by the Council for Educational Advance, a body promoted by the National Union of Teachers and the National Association of Teachers in Further and Higher Education.

It was not clear this week what kind of protests the TUC plans. Dr Richard Wilson of Birkbeck College, secretary of the London committee of the Association of University Teachers, said there had been no discussion so far of involving any strikes.

The week of action will end with a meeting of all the organizations involved in Central Hall, Westminster, on November 10. It will be addressed by Mr Laurie Sapper, general secretary of the AUEU, Mr Charles Clarke, president of the National Union of Students, Mr Bernard Dix, assistant general secretary of the National Union of Public Employees, and Mr Bill Bouden of the NATFHE.

The education cuts will be top of the discussion list on Wednesday when a deputation from the NATFHE meet Mrs Williams, Secretary for Education.

They will present to her the resolutions passed by the NATFHE annual conference three months ago, with special reference to the numbers of students entering teacher training.

Mr Williams has postponed for a month the meeting of the Advisory Committee on the Supply and Training of Teachers planned for October at which it is thought likely the Government will propose the abandonment of the 1981 intake target figures for teacher training. The reason given was that the new ministerial team at the Department of Education and Science needed time to brief themselves.



The West Indian Student Centre dance group practising in happier times. The London centre, the only club in Britain catering for West Indian students, closed last week because of financial difficulties. The West Indian government-

Adults' guide to family trees

City University is to launch a new course entitled *Tracing Family Descent* in its autumn programme of non-vocational courses for adults. It will give an introduction to the use of civil, ecclesiastical, parochial and diocesan archives in tracing family history, and students will have the chance of reading early English documents.

The university is offering an expanded programme of adult education courses both this autumn and next January. Subjects will include social anthropology, ethnic relations in Britain, German literature in German, German for businessmen and scientists, politics, and contemporary American society.

Music courses will play an important part in the new programme. Students will be able to study music and dance from the fifteenth century to the eighteenth century.

Multiscreen+Expoloop = instant display

MULTISCREEN the system that's good looking, soundly constructed, easy to use and folds away compactly. Assembled without the need for tools or skills, it is ideal for open days, project work, parents evenings or simply as extra display areas in your classroom.



Marler Haley EXPOSYSTEMS

ExpoSystems House, High Street, Barnet, Herts. Telephone: 01-449-9611 Telex: 23356

Clip the coupon now, send it to us and you may learn a thing or two about display.

Please send me details of MULTISCREEN and EXPOLOOP.

Name _____

School/Authority _____

Address _____

THE POLITICAL QUARTERLY

"BRITISH NORTH SEA OIL: POLICIES PAST AND PRESENT"

Professor Donald Watt of L.S.E. and Chatham House

gives an important critical appraisal of the whole course of British policy. Also in the current issue is Robert Taylor, the industrial correspondent of the *Observer*, making a fundamental appraisal in "The Uneasy Alliance" of relationships between Labour and the unions. John Whale of the *Sunday Times* "Insight Team" gives a full and disturbing account of the role of the Press in the fall of Jeremy Thorpe.

An historical appraisal of the tactics of the IRA by Dr Tom Bowden points to faults in present policies. Milovan Djelic, the Yugoslav dissenter and author, writes on "Déjà-vu" and Donald Armour on the difficulties of reporting in Moscow. John Beavan continues "Westminster Scene" and John MacIntyre writes a thoughtful editorial on our economic situation and what our institutions, help or hinder.

Oct-Dec. 1976 issue now available £1.60 by post

ORDER FORM To: THE POLITICAL QUARTERLY, 10-16 Elm Street, London WC1X 0BP

Please send me copy/ies of the Oct-Dec. issue of The Political Quarterly at £1.60 (North America \$5) including postage and packing.

Please enter my name for an annual subscription to The Political Quarterly at £6; Student rate £4.80 (post free).

I enclose my cheque for £..... From

LIBYAN ARAB REPUBLIC

Academic vacancies exist at

THE INSTITUTE OF EDUCATION, SABHA,

commencing October 1976 in the following fields:

English Literature English Language Linguistics

Qualified persons with PhD, MA or BA's with university teaching experience are invited to submit applications to:

The Cultural Office Embassy of the Libyan Arab Republic 58, Prince's Gate London SW7

Detailed resume, copies of educational and experience certificates and references are required with applications.

SALARY GRADE (ANNUAL)

Position	From	To	Annual Incr.	Total Incr.
Professor	5760 LD	6480 LD	120 LD	6
Associate Prof.	5040	5760	120	6
Assistant Prof.	4560	5040	80	6
Lecturer	4160	4562	67	6
Assistant Lect.	3510	4158	108	6

AUSTRALIA NEW SOUTH WALES

Department of Technical and Further Education

Head of School of Textiles

Applications are invited for the above position. The New South Wales Department of Technical and Further Education is a State Government instrumentality which is responsible primarily for the provision of vocationally oriented education and training.

The School of Textiles offers over twenty different courses providing training at the handicraft, trade (craft), technician and higher technician levels in the areas of yarn manufacture, fabric manufacture, industrial production of garments and in some other textile-related areas. The School also prepares selected students for A.T.I. final examinations.

The headquarters of the School are located at Strathfield where two recently erected buildings house a wide range of modern spinning, weaving, knitting, clothing, manufacture and testing equipment. Some of the School's courses are offered in other centres in New South Wales.

Salary: \$A19,203.

Qualifications:

Essential: Appropriate Degree, Diploma or equivalent experience at senior level in production in textile industry.

Desirable: Fellow or Associate of the Textile Institute; experience at senior level in other sections of industry.

Duties:

Lead the School in the development of staff and courses to meet the changing needs of the industry.

Conditions:

(a) Normal teaching conditions will be observed, including 11 weeks' recreation leave each year.

(b) Superannuation is available on commencement of duty subject to medical fitness.

(c) Consideration will be given for assistance in removal costs and travelling expenses.

Written applications (nominating at least two referees and accompanied by a returnable passport size photograph) should be forwarded to the Recruitment Section, New South Wales Government Offices, 88 Strand, London WC2N 6LZ, as soon as possible but in any event no later than 22nd October when applications close. Further information may be obtained by telephoning the Recruitment Section, New South Wales Government Offices, on 01-839 6851 Extension 194. When writing or telephoning please quote reference 44/829(THESE).

Colleges and Institutes of Technology

Cambridgeshire County Council PETERBOROUGH TECHNICAL COLLEGE

Principal (£9,895)

The vacancy will occur on the retirement of the Principal in August 1977, and his successor will be expected to take up the appointment on 1st September 1977. The College is currently in Burnham Group 5. Full particulars and application forms obtainable from the Chief Education Officer, Castle Hill, Cambridge. Closing date 3rd November 1976.

Courses

UNIVERSITY COLLEGE LONDON

For further information, contact the University of London, 100 Brook Street, London W1P 2LP. Tel: 01-275 3111.

Holidays and Accommodation

HOTEL SKANES PALACE

Monthly, weekly, 10 nights, 14 days, 21 days, 28 days, 35 days, 42 days, 49 days, 56 days, 63 days, 70 days, 77 days, 84 days, 91 days, 98 days, 105 days, 112 days, 119 days, 126 days, 133 days, 140 days, 147 days, 154 days, 161 days, 168 days, 175 days, 182 days, 189 days, 196 days, 203 days, 210 days, 217 days, 224 days, 231 days, 238 days, 245 days, 252 days, 259 days, 266 days, 273 days, 280 days, 287 days, 294 days, 301 days, 308 days, 315 days, 322 days, 329 days, 336 days, 343 days, 350 days, 357 days, 364 days, 371 days, 378 days, 385 days, 392 days, 399 days, 406 days, 413 days, 420 days, 427 days, 434 days, 441 days, 448 days, 455 days, 462 days, 469 days, 476 days, 483 days, 490 days, 497 days, 504 days, 511 days, 518 days, 525 days, 532 days, 539 days, 546 days, 553 days, 560 days, 567 days, 574 days, 581 days, 588 days, 595 days, 602 days, 609 days, 616 days, 623 days, 630 days, 637 days, 644 days, 651 days, 658 days, 665 days, 672 days, 679 days, 686 days, 693 days, 700 days, 707 days, 714 days, 721 days, 728 days, 735 days, 742 days, 749 days, 756 days, 763 days, 770 days, 777 days, 784 days, 791 days, 798 days, 805 days, 812 days, 819 days, 826 days, 833 days, 840 days, 847 days, 854 days, 861 days, 868 days, 875 days, 882 days, 889 days, 896 days, 903 days, 910 days, 917 days, 924 days, 931 days, 938 days, 945 days, 952 days, 959 days, 966 days, 973 days, 980 days, 987 days, 994 days, 1001 days, 1008 days, 1015 days, 1022 days, 1029 days, 1036 days, 1043 days, 1050 days, 1057 days, 1064 days, 1071 days, 1078 days, 1085 days, 1092 days, 1099 days, 1106 days, 1113 days, 1120 days, 1127 days, 1134 days, 1141 days, 1148 days, 1155 days, 1162 days, 1169 days, 1176 days, 1183 days, 1190 days, 1197 days, 1204 days, 1211 days, 1218 days, 1225 days, 1232 days, 1239 days, 1246 days, 1253 days, 1260 days, 1267 days, 1274 days, 1281 days, 1288 days, 1295 days, 1302 days, 1309 days, 1316 days, 1323 days, 1330 days, 1337 days, 1344 days, 1351 days, 1358 days, 1365 days, 1372 days, 1379 days, 1386 days, 1393 days, 1400 days, 1407 days, 1414 days, 1421 days, 1428 days, 1435 days, 1442 days, 1449 days, 1456 days, 1463 days, 1470 days, 1477 days, 1484 days, 1491 days, 1498 days, 1505 days, 1512 days, 1519 days, 1526 days, 1533 days, 1540 days, 1547 days, 1554 days, 1561 days, 1568 days, 1575 days, 1582 days, 1589 days, 1596 days, 1603 days, 1610 days, 1617 days, 1624 days, 1631 days, 1638 days, 1645 days, 1652 days, 1659 days, 1666 days, 1673 days, 1680 days, 1687 days, 1694 days, 1701 days, 1708 days, 1715 days, 1722 days, 1729 days, 1736 days, 1743 days, 1750 days, 1757 days, 1764 days, 1771 days, 1778 days, 1785 days, 1792 days, 1799 days, 1806 days, 1813 days, 1820 days, 1827 days, 1834 days, 1841 days, 1848 days, 1855 days, 1862 days, 1869 days, 1876 days, 1883 days, 1890 days, 1897 days, 1904 days, 1911 days, 1918 days, 1925 days, 1932 days, 1939 days, 1946 days, 1953 days, 1960 days, 1967 days, 1974 days, 1981 days, 1988 days, 1995 days, 2002 days, 2009 days, 2016 days, 2023 days, 2030 days, 2037 days, 2044 days, 2051 days, 2058 days, 2065 days, 2072 days, 2079 days, 2086 days, 2093 days, 2100 days, 2107 days, 2114 days, 2121 days, 2128 days, 2135 days, 2142 days, 2149 days, 2156 days, 2163 days, 2170 days, 2177 days, 2184 days, 2191 days, 2198 days, 2205 days, 2212 days, 2219 days, 2226 days, 2233 days, 2240 days, 2247 days, 2254 days, 2261 days, 2268 days, 2275 days, 2282 days, 2289 days, 2296 days, 2303 days, 2310 days, 2317 days, 2324 days, 2331 days, 2338 days, 2345 days, 2352 days, 2359 days, 2366 days, 2373 days, 2380 days, 2387 days, 2394 days, 2401 days, 2408 days, 2415 days, 2422 days, 2429 days, 2436 days, 2443 days, 2450 days, 2457 days, 2464 days, 2471 days, 2478 days, 2485 days, 2492 days, 2499 days, 2506 days, 2513 days, 2520 days, 2527 days, 2534 days, 2541 days, 2548 days, 2555 days, 2562 days, 2569 days, 2576 days, 2583 days, 2590 days, 2597 days, 2604 days, 2611 days, 2618 days, 2625 days, 2632 days, 2639 days, 2646 days, 2653 days, 2660 days, 2667 days, 2674 days, 2681 days, 2688 days, 2695 days, 2702 days, 2709 days, 2716 days, 2723 days, 2730 days, 2737 days, 2744 days, 2751 days, 2758 days, 2765 days, 2772 days, 2779 days, 2786 days, 2793 days, 2800 days, 2807 days, 2814 days, 2821 days, 2828 days, 2835 days, 2842 days, 2849 days, 2856 days, 2863 days, 2870 days, 2877 days, 2884 days, 2891 days, 2898 days, 2905 days, 2912 days, 2919 days, 2926 days, 2933 days, 2940 days, 2947 days, 2954 days, 2961 days, 2968 days, 2975 days, 2982 days, 2989 days, 2996 days, 3003 days, 3010 days, 3017 days, 3024 days, 3031 days, 3038 days, 3045 days, 3052 days, 3059 days, 3066 days, 3073 days, 3080 days, 3087 days, 3094 days, 3101 days, 3108 days, 3115 days, 3122 days, 3129 days, 3136 days, 3143 days, 3150 days, 3157 days, 3164 days, 3171 days, 3178 days, 3185 days, 3192 days, 3199 days, 3206 days, 3213 days, 3220 days, 3227 days, 3234 days, 3241 days, 3248 days, 3255 days, 3262 days, 3269 days, 3276 days, 3283 days, 3290 days, 3297 days, 3304 days, 3311 days, 3318 days, 3325 days, 3332 days, 3339 days, 3346 days, 3353 days, 3360 days, 3367 days, 3374 days, 3381 days, 3388 days, 3395 days, 3402 days, 3409 days, 3416 days, 3423 days, 3430 days, 3437 days, 3444 days, 3451 days, 3458 days, 3465 days, 3472 days, 3479 days, 3486 days, 3493 days, 3500 days, 3507 days, 3514 days, 3521 days, 3528 days, 3535 days, 3542 days, 3549 days, 3556 days, 3563 days, 3570 days, 3577 days, 3584 days, 3591 days, 3598 days, 3605 days, 3612 days, 3619 days, 3626 days, 3633 days, 3640 days, 3647 days, 3654 days, 3661 days, 3668 days, 3675 days, 3682 days, 3689 days, 3696 days, 3703 days, 3710 days, 3717 days, 3724 days, 3731 days, 3738 days, 3745 days, 3752 days, 3759 days, 3766 days, 3773 days, 3780 days, 3787 days, 3794 days, 3801 days, 3808 days, 3815 days, 3822 days, 3829 days, 3836 days, 3843 days, 3850 days, 3857 days, 3864 days, 3871 days, 3878 days, 3885 days, 3892 days, 3899 days, 3906 days, 3913 days, 3920 days, 3927 days, 3934 days, 3941 days, 3948 days, 3955 days, 3962 days, 3969 days, 3976 days, 3983 days, 3990 days, 3997 days, 4004 days, 4011 days, 4018 days, 4025 days, 4032 days, 4039 days, 4046 days, 4053 days, 4060 days, 4067 days, 4074 days, 4081 days, 4088 days, 4095 days, 4102 days, 4109 days, 4116 days, 4123 days, 4130 days, 4137 days, 4144 days, 4151 days,

Go for a drive in the sun this winter

Do you like the idea of exploring sunny foreign parts by car, with the freedom to go where you please, when you please? If you do, then a Thomson Fly-Drive holiday will suit you. Choose from 7 or 14 nights, no accommodation, part accommodation (with only your first and last night's stay prebooked and paid for), or full accommodation with bed and breakfast vouchers for the other nights of your stay.

Three or four weeks before departure we will send you a "Fly-Drive Pack" with a map, hotel lists and driving information to help you plan your holiday.

Fly from Luton or Gatwick to Spain, Majorca or Italy, and from Luton only to Greece. Prices vary from as little as £49 per person for 7 nights in Spain with no accommodation to £151 for 14 nights in Greece with full accommodation—both with 4 people to a car.

See your travel agent for full details now or ring us on 01-387 4431/4481.

Prices subject to availability and adjustment—minimum 2 people. ATOL 152BC

THOMSON
Fly Drive Holidays

TAYLOR-WILSON

Specialist suppliers of scientific and programmable calculators to H.M. Government, universities and local authorities.

OFFER THE TEXAS SR '56

This Keystroke programmable calculator gives:

- Computing Power in your Hand.
- Includes:
- 100 programme steps.
- 10 memories.
- Full algebraic logic.
- 9 levels of parenthesis.
- 4 levels of subroutines.
- Case style as SPSIA.
- Branching and decision capability.



Desk top security model including a thermal printing unit also available, £124.08 inc. V.A.T. (R.R.P. £289.95)

TAYLOR-WILSON SYSTEMS LTD.
Specialist suppliers of electronic calculators.
FREEPOST, Dordago, Solihull, West Midlands B93 8BR
Tel. Knowle (056-45) 6192 BAROLYARD

PARIS FROM £29!

You'll be allocated your hotel on arrival, out of 3 all in the Opera/Gare du Nord area—all at least one star official rating.

Fly from Luton for 3 nights from £29 bed and breakfast, 4 nights from £35 bed and breakfast.

See your travel agent for the special leaflet or ring us on 01-387 5011/5081.

THOMSON HOLIDAYS BUDGET BREAKS

Prices subject to availability and adjustment ATOL 152BC.

ACADEMIC DEVELOPMENTS

Undergraduates really dig up medieval past

The continuing trend towards non-vocational arts courses is underlined by the high standard of applicant for the new degree course in medieval history and archaeology which starts at Liverpool University this term.

According to Professor Alec Myers, head of the Department of Medieval History, the five students taking this specialized undergraduate course were selected from strong competition.

Professor Myers explained the reasoning behind launching the course: "We decided to run it in order to take advantage of the presence in this university of a lecturer in medieval archaeology. Dr Lloyd Laing is one of only a handful of lecturers in this discipline in British universities."

"Our experience with the degree course in ancient and medieval history and archaeology has shown that students derive great benefit from understanding the relationship between written and archaeological evidence. Dr Laing's

contribution will enable students to study the medieval period from both points of view.

"To the layman it may indeed sound a rather narrow area of study, but when you look at it closely it is a very big field: the students are covering more than 1,000 years of history within a number of different cultures."

Recently there has been a marked swing towards the use of an integrated range of scientific methods in the study of archaeology. The course takes account of these by arranging special classes with departments of geography, metallurgy and materials science, and physics.

Professor Myers said: "We are not necessarily restricting entry to students who have studied the medieval period, but we are looking for those who have studied some history at school and who have a feeling for historical method. It is also useful if they have some acquaintance, however slight, with this degree might lead graduates to museum work."

Three ways to look at Third World

The Third World can be seen from its economic, historical, sociological aspects on three degrees courses starting at Kent University this month. Students opt for a BA, development studies or a sociology degree.

The first of these basic courses provides a broad theoretical framework and covers such topics as capitalist production, the transition from feudalism to capitalism, and socialism in the Soviet Union, China and Eastern Europe.

The second course concentrates on the development of the developing countries, the problem of surplus labour, urban unemployment, and the role of the state.

The third course is a sociology of the Third World, a sociological and anthropological point of view of the changes in the poorer agricultural countries. It will deal with societies and the problems of development.

Each degree is rooted in a discipline which trains students in economists, economic historians, sociologists as well as in the study of development.

Part-timers demand Sussex curriculum training

The one-year MA course in curriculum development for teachers in further and higher education at Sussex University has been so popular that a new part-time version is to be launched.

The one-year course was planned originally as part of a Department of Education and Science sponsored investigation into the possibility of training lecturers in curriculum development but it has now become an established course within the university.

A report on the investigation is expected soon and this may shed light on how successful the course has been in serving the needs of teachers in universities, polytechnics and colleges.

Such was the demand for the course, that local institutions, earlier this year, asked the university to mount a part-time version. The response was rapid and a new course planned and approved within the space of two terms. It should begin in January 1977.

The two-year course will be offered in alternate years and is aimed at people with an academic or future role in educational development work at departmental, faculty or institutional level. It follows as closely as possible the pattern of

the existing full-time MA and similar the intake will be limited to 12 students.

The course programme will be centred around three main themes: teaching and learning; curriculum analysis and evaluation; and curriculum and staff development.

The first of these will involve a study of higher education institutions through their organization, curriculum patterns, and teaching and learning experience of staff on how to analyse courses in detail, in terms of content, assumptions and matters of teaching and learning.

The final part will concentrate on design and implementation of new courses and will also focus on staff development and institutional support for teaching and learning.

This programme will provide the basis for each of three projects to be completed during the course, but individual project themes will be negotiated with course tutors and are expected to vary considerably according to student interests.

Generally students will study organizational matters or activities in their own institutions or departments and it is hoped that they will be able to step out of their role and examine these with new perspectives.

Design for textiles

The University of Manchester has started a new course in design for textiles, designed to meet the needs of the textile industry in recent years.

The three-year BSc course is to train designers for an industry, giving equal attention to design, technology and management.

The new methods such as computer-aided design, the technology of textile production and the management of the textile industry are emphasized.

The management part of the course covers general problems of choice of materials and economic factors involved in designing textiles. A practical project in design will form part of the first year.

Students will have frequent contact with the industry itself through visits, projects, vacation assignments. Industry's favourable action to the new course makes the organization think students will have no problems at all in finding employment when they graduate.

The first year's applicants exceeded the number of places available and qualifications were good. Subjects, together with levels in mathematics and English.

Computing twice weekly

A four-year development course leading to a BSc in applied computing starts this month at the Polytechnic of Central London. The course, which there are still a few places left, is open to those engaged in computing, statistics or mathematics in industry, commerce or education.

Subjects studied on the course include: principles of computing, data processing, data base design, mathematics and statistics, numerical analysis, analogue computing, research, systems analysis, and the theory of computing.

The course is validated by the Council for National Academic Awards and runs on a full-time basis with extra evenings. It is a G.C.E. A level in mathematics or an OND (or ONC) in engineering or science will be required for entry. Other qualifications may in some circumstances be considered.

Don's diary

Wednesday

For the past week or so we have been preparing for the arrival of the new first-year students (about 140) and the return, we assume, of the existing 220 students to the second and third years.

With the latter, one of the main problems of a modular degree course is the time-bombing. Module choices made at the end of last semester, and definitely fed into the computer, inevitably have to be made by many of the returning students. Will have changed their minds and our timetables will have to undergo wholesale swapping and reorganizing. So much for forward planning.

We obviously have to make some assumptions about unlikely combinations in order to squeeze the whole programme into the limited number of hours. After turning it over and upside down, the second-year coordinator and I agree reluctantly that in no way can we make it possible for the one and only student who unexpectedly wants to study both psychology and geography.

The first year is our real concern, however. This year we are abandoning the week-long induction course of previous years in favour of a concentrated session on the Friday morning before term starts. Two years' experience have finally convinced us that the last thing new students want to do is spend a whole week learning how to be students—they simply want to get on with the job.

This morning, however, the putting together of all the information for Friday's induction meeting must wait. I am to entertain a visiting tutor from an Egyptian university, along with a member of our own faculty. The former's new university, with 40,000 students, is one year old—an example of the instant change we now associate with the Arab world. Over coffee he gleefully tells us how the Americans are putting in, as a gift, a complete collection of journals going back 20 years, on microfilm. To be our own political allegiances are so unambiguous that the Americans feel no need to woo us in the same way.

Thursday

Work in the secretary's office reaches fever pitch as she collects together all the booklets, organization notes and timetables for tomorrow's new first year. The who have been responsible for a similar exercise will understand.

An American friend, resident in London, telephones to complain about the "peculiar British" way of having a holiday in the United States when you return to British Airways to buy a return ticket to London, and attempted to pay with a sterling cheque.

But dear old British Airways would in no circumstances accept payment in sterling. Any currency, it appeared, but not sterling. Fly the way with the pound, but preferably not with the pound.

Staff begin to drift in from the four corners of the earth, most complaining bitterly about the outrageous expense of foreign travel. I know they are back in England and in principle contactable, but being elusive that their return will be made only marginally easier. I often wonder what the staff who are rarely in their offices do with their time.

Friday

As I survey the new crop of students at the induction meeting I have in vain for this year's "unlabeled" students. Unlike students of a few years ago, the group seems so normally dressed they could merge with any crowd. Not even the ubiquitous denim, which I had thought was the only trend, are the same. The new shirts/sweaters with names, or, rather, very famous or entirely obscure American universities.

I also meet an American student here for a year abroad who will be taking four credits with us. He has all the earnestness of an American student and addresses me as "Mr. Gould" a term which I have never heard of since students do not now seem to use such a term. He also keeps referring to the

I introduce the dean of the school (the day, I realize, somewhat gloomily about education cuts, inadequate resources, and the rather dismal prospects facing students over the next few years. He is right of course, but I make a mental note to be a bit more optimistic when he has finished. After all, negative growth or not, they are going to be here for the next three years and the demands on them will not abate.

In such a climate it would not surprise me to find many other academics I have spoken to if in every institution of higher education throughout the land there is at present a secret top level committee trying to decide where the redundancies must fall. I know of a university not 150 miles from London where one department faces a problem not of declining student numbers but of no students at all, and has been in this position for several years. How long can this go on?

After the induction meeting, the first year coordinator and I return to our offices. We have to make some assumptions about unlikely combinations in order to squeeze the whole programme into the limited number of hours. After turning it over and upside down, the second-year coordinator and I agree reluctantly that in no way can we make it possible for the one and only student who unexpectedly wants to study both psychology and geography.

The first year is our real concern, however. This year we are abandoning the week-long induction course of previous years in favour of a concentrated session on the Friday morning before term starts. Two years' experience have finally convinced us that the last thing new students want to do is spend a whole week learning how to be students—they simply want to get on with the job.

This morning, however, the putting together of all the information for Friday's induction meeting must wait. I am to entertain a visiting tutor from an Egyptian university, along with a member of our own faculty. The former's new university, with 40,000 students, is one year old—an example of the instant change we now associate with the Arab world. Over coffee he gleefully tells us how the Americans are putting in, as a gift, a complete collection of journals going back 20 years, on microfilm. To be our own political allegiances are so unambiguous that the Americans feel no need to woo us in the same way.

Work in the secretary's office reaches fever pitch as she collects together all the booklets, organization notes and timetables for tomorrow's new first year. The who have been responsible for a similar exercise will understand.

An American friend, resident in London, telephones to complain about the "peculiar British" way of having a holiday in the United States when you return to British Airways to buy a return ticket to London, and attempted to pay with a sterling cheque.

But dear old British Airways would in no circumstances accept payment in sterling. Any currency, it appeared, but not sterling. Fly the way with the pound, but preferably not with the pound.

Staff begin to drift in from the four corners of the earth, most complaining bitterly about the outrageous expense of foreign travel. I know they are back in England and in principle contactable, but being elusive that their return will be made only marginally easier. I often wonder what the staff who are rarely in their offices do with their time.

Monday

With all three years of students drifting in and milling about, the coordinators for each year and I find ourselves besieged. There seems to end to the queries, problems, difficulties and questions which all require a quick answer.

Every student seems to pose a different set of questions. One, who left last year to continue at another institution for personal reasons, mainly friends, is back to discuss whether he should have stayed after all. Time table clashes lead the field, with uncertainty about programme choices a close second. Grant and accommodation, thank God, are dealt with elsewhere.

I begin to meet the students entering directly into the second year of the course. They have all completed and passed an equivalent first year at some other institution and are transferring to us usually because either the degree course they are on is too much of a single discipline exercise and they are seeking more flexibility, or because they are fed up with a campus life that is too restricted and boring.

Not even the ubiquitous denim, which I had thought was the only trend, are the same. The new shirts/sweaters with names, or, rather, very famous or entirely obscure American universities.

I also meet an American student here for a year abroad who will be taking four credits with us. He has all the earnestness of an American student and addresses me as "Mr. Gould" a term which I have never heard of since students do not now seem to use such a term. He also keeps referring to the

I introduce the dean of the school (the day, I realize, somewhat gloomily about education cuts, inadequate resources, and the rather dismal prospects facing students over the next few years. He is right of course, but I make a mental note to be a bit more optimistic when he has finished. After all, negative growth or not, they are going to be here for the next three years and the demands on them will not abate.

In such a climate it would not surprise me to find many other academics I have spoken to if in every institution of higher education throughout the land there is at present a secret top level committee trying to decide where the redundancies must fall. I know of a university not 150 miles from London where one department faces a problem not of declining student numbers but of no students at all, and has been in this position for several years. How long can this go on?

Mrs Williams acclaimed at Labour conference

by David Walker

A 100-minute debate on education at the Labour Party's annual conference in Blackpool last week ended with a vote of confidence in Government policy and personal acclaim for Mrs Williams, the new Secretary for Education.

Both Mrs Williams and Mr Fowler, former Minister of State overseeing higher education, paid tribute to the work done by former Labour Secretaries for Education and urged party members to take more pride in the achievements of the Government since 1974.

Motions opposing reductions in education spending which called for the expansion of numbers in teacher training and guaranteed jobs for all school teachers were defeated. The conference did however accept general condemnations of spending cuts and resolved to support local councils which refused to carry out reductions.

Most who spoke on education were critical of Government decisions. Mr Michael Gapes, chairman of the National Organization of Labour Students, asked how could justify the Labour Party to colleges of education students when teachers were unemployed and school classes still exceeded the 30-pupil maximum laid down in party policy for years.

He and other speakers demanded mandatory maintenance allowances for students in full-time education after 16 years, and the cancellation of increases in student tuition fees. These policies were being forced on the Government by international financial interests and by the Confederation of British Industry.

Mr Michael Knowles, representing the Socialist Educational Association, said: "It is a crime to think that Labour Government can take money out of a system which is already criminally undernourished."

Improved access to higher education was demanded by Mrs Ruth Henig, a history lecturer at Lancaster University and a prospective Labour parliamentary candidate. She spoke of a general right of access to education from three to 21 and deplored the selection of 11 which some local education authorities still operated.

Local grievances on comprehensive schooling and discretionary local authority grants were aired. Mr Bob Wering criticized the Liberal-controlled Liverpool authority for reducing funds for grants to 16-15 year olds. He called for reappraisal of policy on "second chance" students and unemployed adults who took college courses at the risk of losing their unemployment benefits.

Diagrams from Surbiton, Tameside and Surrey, among others, urged drastic curtailment of local authorities' powers. Tory councils should be compelled to introduce comprehensive schemes and provide

There really is a need for a cost-benefit analysis of democracy in institutions of higher education. The cost in paper and labour for typing must be enormous.

For example, last academic year I and the other 31 elected members of the school board received more than 200 pages, many of them typed both sides, and paper, to get a picture of what is happening in the school as a whole you would have to add on the many sub-committees and working parties. Multiply this by the number of schools in the polytechnic, then add all the pages generated by the polytechnic committees themselves, and you must arrive at an enormous sum. And what about the cost in time, the hours and hours spent on committee work? How much more efficient, if at all, does it make us?

I take a stroll and look at the course noticesboard. Only the second day of term and it is already several layers deep in notices. Has anyone discovered a successful method of communicating with students (I use the word in the sense of transmitting information, no more)? We put up notices, we send messages via their pigeon holes, we write to them at home, but nothing ever seems to reach some students. If they are caught on a campus, perhaps it might be easier.

Obviously, my diary begins to fill up with appointments for working parties and committees as they are received from their summer absence. The inflow (and outflow) of memos increases.

Another session is obviously under way.

The author is senior course tutor of the social science modular degree at the Polytechnic of Central London.

Tuesday

Looking ahead, the next urgent business is to get the election for the course committee under way. The course committees—equal numbers of staff and students, each elected by their separate constitu-

encies, rotating chairmen—are an integral part of the "democratic" organization of the institution.

The course committee elections herald the beginning of a whole series of elections to take place during the first term—the new school (faculty) board, its sub-committees, and the election of a new Dean. With a bit of luck the whole process should be completed by the end of term.

There really is a need for a cost-benefit analysis of democracy in institutions of higher education. The cost in paper and labour for typing must be enormous.

For example, last academic year I and the other 31 elected members of the school board received more than 200 pages, many of them typed both sides, and paper, to get a picture of what is happening in the school as a whole you would have to add on the many sub-committees and working parties. Multiply this by the number of schools in the polytechnic, then add all the pages generated by the polytechnic committees themselves, and you must arrive at an enormous sum. And what about the cost in time, the hours and hours spent on committee work? How much more efficient, if at all, does it make us?

I take a stroll and look at the course noticesboard. Only the second day of term and it is already several layers deep in notices. Has anyone discovered a successful method of communicating with students (I use the word in the sense of transmitting information, no more)? We put up notices, we send messages via their pigeon holes, we write to them at home, but nothing ever seems to reach some students. If they are caught on a campus, perhaps it might be easier.

Obviously, my diary begins to fill up with appointments for working parties and committees as they are received from their summer absence. The inflow (and outflow) of memos increases.

Another session is obviously under way.

The author is senior course tutor of the social science modular degree at the Polytechnic of Central London.

Sheffield has 4,000 more students

The number of students at public sector higher and further education institutions in Sheffield has risen by more than 4,000 in the last seven years, according to the latest statistics released by the city's education committee.

The figures show that while the numbers at Torrey-Thornbridge College and at the City College of Education fell from 2,400 in 1970 to 1,800 last year—the total number of students is growing.

In 1970, 21,000 full-time, part-time and evening students attended the polytechnic, the colleges of further education and the colleges of education. By last year the number had increased to 25,533.

Sheffield Polytechnic numbers grew from 5,000 in 1970 to 6,000 in 1975, with a complete shift of emphasis away from evening to day students. Student numbers at the day colleges of further education increased from 13,000 in 1970 to more than 17,000 in 1975.

SSRC rejects grant complaint

The Social Science Research Council has dismissed complaints from London University students that postgraduate awards have become more difficult than usual to get this year.

"According to a spokesman the number applying for its 'pool' awards was twice as high as last year, inevitably increasing the competition. The graduate office of the London School of Economics said that such complaints were received every year.

Several students had complained to the University of London that, despite getting first-class degrees and course places, they had been unable to get SSRC money. Mr Richard Silver, the union president, has written to the council asking why many London students were not informed about their grant applications until weeks after the advertised date of August 30.

The SSRC also said that fewer departments were returning their "quota" awards to be redistributed, which implied there were sufficient high quality candidates for their allocated awards. It was investigating possible delays in notifying candidates.

Australia's colleges of advanced education are looking for ways of diversifying their role. Peter Wilby reports

No special place for 'rabble'

Australia's advanced education sector was established in 1965, just as Mr. Croftland was announcing his vision of the English polytechnics. And the colleges of advanced education began with purposes strikingly similar to the English polytechnics. But their aims of the sector have become more complex in 1973, with the acquisition of the state teachers' colleges freed from the control of state education departments. The predominant concern of the sector—now comprising 80 autonomous colleges—is no longer applied science but education, which accounts for 42 per cent of all enrolments.

Both types of college—the technically based institutions and the former teachers' colleges—are attempting to diversify their offerings. And all the evidence suggests that the polytechnic-style colleges, particularly, are developing courses similar to those offered in the universities rather than extending their original brief in the fields of sub-degree, part-time and vocational work.

Raising the level

In its fourth triennial report (1975), the Commission on Advanced Education (which advises the federal Government on the distribution of funds to the colleges) noted "the desire of many colleges to raise the level of their first qualification and to increase the number of higher-level courses". It lamented the "reluctance to introduce or continue two-year full-time associate diploma courses" although there is often substantial evidence that employers in a number of fields are seeking people with this type of qualification.

A "significant number" of diploma courses were upgraded to degree status in 1973-75, and in some cases, lengthened from three to four years. "The quest for status may be overriding educational needs", warned the commission. It also criticized the widespread desire to run postgraduate courses beyond master's level, the failure to make part-time courses sufficiently relevant to students' work experience, and "some unnecessary straining for diversification" in the teachers' colleges.

Scopics might reply that the commission ought to look more closely at its own specifications. Mr. Grant Harman, of the education research unit at the University of New South Wales, has pointed out that, in its first report in 1965, the commission's predecessor (the Advisory Committee on Advanced Education) stressed that college staff should be specialists in the application of knowledge rather than in discovery, good teachers rather than great scholars.

More recently, the commission has been stressing that all new staff should be "academically well-qualified" and seeking special funds to attract those with postgraduate studies. The changed emphasis, Mr. Harman says, has been reflected in press advertisements. At first, the colleges stressed professional expertise, once and said little about formal academic qualifications. Now, however, the degree or an honours bachelor degree is essential for appointment.

Harman quotes changes in the staff composition of the Royal Melbourne Institute of Technology as further evidence. In 1968, 10 per cent had higher degrees and 40 per cent had no first degree. In 1974, corresponding proportions were 28 per cent and 32 per cent. Mr. Harman was one of an ANU team that surveyed college staff recently: it found more college staff per cent felt under pressure to take higher degrees and almost 40 per cent actually studying for them. In 1968 a survey of six major colleges found that 21 per cent of the staff had been recruited directly from industry and commerce and



Brian Groombridge—he sees London University as a "centre for continuing education"

Why a Proms summer school may hit the right note

The autumn is turning out to be a season of great thinking for Mr. Brian Groombridge, retiring head of educational programmes at the Independent Broadcasting Authority. A fortnight ago there was the round of celebratory programmes, a Guildhall banquet and a dinner at the Victoria and Albert Museum. The whole area of adult education is in a state of "interesting confusion" which demands close monitoring, he says.

He would like to see the extramural department become a genuine centre of continuing education, a focus within the whole university for the education of those over 23. It would provide knowledge and expertise on the curriculum and methods appropriate to mature first degree students and other adults who are "intra mural". It is worth noting the contrast between this and ideas such as those of Sir Derwent Christopher, vice-chancellor of Durham University, who argued at a conference earlier this year for a grouping of all the part-time courses under one roof, making the former adult education department responsible for the whole range of part-time postgraduate and post-experience courses.

Mr. Groombridge is not a big spender. "Yes, I am expansionist," he says, "but in the sense that one could reach very much further with the resources we have at hand."

This philosophy applies to adult education and to educational broadcasting. In the former he emphasizes the improving communications and relationships between the heterogeneous mass of different adult education workers. In the latter he takes a stern view of expanding the total amount of television programming, arguing strongly against devoting a fourth television channel to education alone.

During Mr. Groombridge's time at the IBA the independent companies emerged as significant producers of educational programmes, although the BBC retains its position of strength. This guarantees its lively interest in the future of broadcasting.

He says the university should have a centre for continuing education involving both part-time adults outside the university walls and a focus for new teaching methods for the increasing numbers of mature students within.

In all probability, however, Mr. Groombridge's plans will be warmly received. The terms on which his job was advertised and accepted make it clear that he is to deal with the college authorities' want changes. On his side, Mr. Groombridge is a man who has devoted serious thought to the kind of programmes television ought to be producing. He wrote: "The question facing television is, will it continue to alienate us from the world and from the possibility of effective action by transforming an environment we are powerless to affect about which we are continuously but patchily informed or late a spectacle to divert, fill and uselessly appeal us? Or will it help us create a society in which effective action is possible?"

Part of the answer will lie with cooperation between the broadcasters and the teachers and the organizers of adult education. With his experience of the worlds of both television and the national organization of adult education, it could be that Mr. Groombridge will make London University's extra-mural department a lively one.

David Walker



Centre: Professor Roberto Pizarro, former dean of economic sciences at the University of Chile, and his wife Alicia, who were reunited last week after being imprisoned for 10 months without trial in Argentina. Left and right: some of the handicrafts sold by WUS

Towards a fairer deal for the Third World—with a 50p sub

When students returned to university this week and went to collect their union cards, they were asked to pay an extra 50p for the World University Service. The money is to provide scholarships in Britain for students who cannot study in their own countries for either political or financial reasons.

This scholarship campaign, approved by the National Union of Students in April and brought into effect for the first time this week, is expected to raise more than £50,000. It will effectively double the number of scholarships that student unions are funding for refugees from developing countries, which now stands at 48.

Some of the money will be kept by individual student unions for funding local scholarships and the rest will go into WUS's general fund. The organizers originally envisaged only nine or 10 universities taking part, but the scheme has mushroomed and it is now thought that about 100,000 students will participate, from many polytechnics as well as most universities.

Impressive though the scholarship campaign is, however, it does not, and will not, account for the bulk of scholarships provided by the service; and providing scholarships is not the service's only task.

Its aim is to campaign for a fairer deal for the Third World generally. It tries to raise public awareness of the problems of developing countries, through meetings, conferences, development studies courses and projects such

as the literacy project in Nepal in which students go out to the villages to teach reading and writing. Formed out of the Student Christian Movement in 1920, the organization now has committees in 45 different countries. In Britain it has a full-time staff of 17 and an income of more than £750,000. Its money comes from four main sources: income from the investments made over the years; contributions from trusts and from Friends of WUS; subscriptions from affiliated student unions; and administrative funds for individual programmes.

But although the service has the important general aim of increasing public awareness, two large scholarship schemes probably make up the largest part of its work. The first is the Zimbabwe students scheme, through which WUS supports about 200 black students at the University of Rhodesia each year. It set up the scheme in 1968 with grants for three scholarships and then started looking for substantial donors. The funds now come largely from the Ministry of Overseas Development, but six or seven scholarships are still provided by British student unions.

The Chile refugee scheme it runs in the Chile refugee programme, which this year will cost the £1,250,000. For this project the bulk of the funds also come from the ODM, but Government support was paid only after a vigorous campaign by academics and student unions.

Between the time of the coup which toppled the Allende govern-

ment in September, 1973, and the time when the ODM came forward with funds, WUS managed to raise about £40,000 from local contributions and established about 45 fellowships for Chilean academics. After 10 months of WUS campaigning and a change of government, the ODM finally came forward with funds in July, 1974.

The service has now awarded 459 scholarships, although only 278 have been taken up so far. The discrepancy is partly due to the fact that some only come into operation this term, and some have been awarded to academics in prison.

More than half the awards have gone to Chilean academics applying from Chile or Argentina, many of whom are in danger because of their opposition to the regime of General Pinochet. They apply to WUS through a committee of academics in Santiago, but their problems do not end when they hear they have a scholarship.

The Home Office has been slow in processing visa applications, so that despite their difficult position many applicants have had to wait several months before being able to leave the country.

Professor Roberto Pizarro, former dean of economic sciences at the University of Chile, for example, who was reunited with his wife, Alicia, last week after 10 months in an Argentinean jail, had to wait from February, when he was awarded a WUS scholarship, until June to get his visa from Britain.

The service then has to apply as much pressure as possible on the

Chilean or Argentinean governments to obtain the prisoner's release. When released, the detainee is usually put straight on a flight for Britain, and WUS has the satisfying task of meeting them at the airport and seeing them savour their first moments of freedom.

About 200 of the scholarships have been given to refugees already in Britain who left Chile without knowing where they would go when they arrived. These refugees cannot get any local authority grants to study because they do not fulfil the necessary residential qualifications; so WUS provides the equivalent.

For both groups a service also has to organize English language tuition and accommodation, although as time goes on the first wave of Chilean refugees are doing more and more themselves to help their compatriots.

Mr. Alan Phillips, general secretary of WUS, said that one of the organization's main priorities is to develop a structure that could cope with large numbers of refugees and their problems. He is also keen that the Government should adopt a long-term strategy to cope with the refugee problem.

"At the moment, it is dealt with in a much too ad hoc way," he said. "The Government has had to deal successively with Czechoslovak, Ugandan Asians, some Indo-Chinese and Kurd refugees, and the Chileans, and yet has not thought of making any long-term scholarship provision."

Apart from acting as a pressure group regarding refugees, WUS also joined with Christian Aid, Oxfam

Annabel Fernley

Bringing education into the world of industry and commerce

International developments in industrial education were considered by members of the Society of Industrial Tutors at their seventeenth study course recently, with Mr. Errol Gelpi, of Unesco's educational section, looking at Unesco's role in developing industrial education.

Mr. John Whitehouse, chief of the Workers' Education Branch, Industrial Relations and Labour Administration Department, of the

Geneva-based International Labour Organization, discussed the role of universities and other educational institutions; while the SIT chairman, Mr. Michael Barratt Brown, senior staff tutor in industrial relations at the University of Sheffield, presented a brief survey of industrial studies in two contrasting countries, India and Japan.

The session devoted to developments in the UK was

addressed by Mr. Roy Jackson, secretary of the TUC's Education Department, and Mr. John Twichin, producer of the BBC's trade union studies programme—part of a project sponsored by the BBC, TUC and WEA.

Apart from its educational purpose, the conference was intended to sort out the organizational problems which have accompanied the society's rapid expansion. It has grown from a handful of members in 1963 to its present membership of nearly 500.

Members instructed their executive to draw up a set of priorities for discussion later. The tutors' SIT's membership is notable in that it comes from right across the educational board. The tutors include university professors and lecturers, polytechnic lecturers, teachers, industrial educators, trade union educators, and from industrial education, education and training officers in industry and add commercial firms.

They are drawn together by the common professional aim: to advance the general education of men and women in industry and commerce through day release and similar provisions in the spirit of the guild education liberal tradition.

Set up originally as a forum for the exchange of ideas and for mutual support, SIT soon found itself being consulted on all matters connected with industrial education by the Government, international agencies, and trade union organizations. A survey of the society's activities in the past 12 months gives some idea of the importance

of its role at a time when industrial education is such a debated issue.

In the consultative field, perhaps the society's most significant contribution has been its pressure on the Government to back a survey to find out how much paid education leave takes place in Britain and how people benefit. As reported in the *THES* (June 4), it was largely as a result of a meeting between the society and Lord Croomer-Hunt last December that the Minister invited SIT, in conjunction with the National Institute of Adult Education, to submit a scheme for an investigation. Discussions about the size of the grant and scale of the survey are now in their final stages.

During the past year the society has also offered evidence to the Select Committee on Industrial Democracy in Private Industry; to the Open University Committee on Continuing Education (the Venables Committee); and it has pressed for representation on any national body which may be established in line with the recommendations for developing adult and continuing education in the Russell Committee's report.

Members of the society have played a major role on a working party on industrial studies, set up by the Universities Council for Adult Education, which has been concerned with both the quality and the quantity of university provision in this field. The society has also taken part in discussions on industrial studies with industrial training agencies.

SIT has also taken part in the continuing and initiation of a number of industrial studies courses,

both in Britain and overseas. Mr. Barratt Brown has been closely concerned from the start in the media studies project sponsored by the TUC, BBC and WEA, and in involvement as the series goes ahead. Members have been concerned in the preparation of a book on industrial studies, and many are correspondence tutors for the project.

The country's recent concern with industrial democracy (reflected in the Labour Party conference) has caused various organizations, as the Institute of Workers' Education, the Institute of Supervisory Management, to try and develop a syllabus for teaching the subject in each case they have set up working parties and sought the presence of a SIT representative.

Formal recognition of the society's interest in industrial education has come from the Department of Education and Science, which now works through SIT in the organization of various workshop courses for tutors, overseas, recognition of SIT's experience as come from the Free Trade Unions, who asked the society to provide tutors and study for trade union leaders in the Croomer-Hunt November.

Mr. SIT skills have not been limited to lecture rooms or the formal report. A curriculum working group from the society, working with Hutchinson's Arrow Books, has produced a series of books on trade union industrial studies, and views in trade union journals seem to suggest that this meets an urgent need.

Marian Blatkey

This week in the T.L.S.

Anthony Powell's memoirs

Henry Adams and Henry James

The National Theatre

Frank Muir, Kingsley Amis; Beryl Bainbridge

The Times Literary Supplement

On sale now, 20p

كتاب من الأصل

Rumania's poet of public spaces

The centenary of an artist's birth is a convenient point for reassessment. Artists, like other men and women, rarely live longer than 80 years or so. The 20 years or more gap allows sufficient time for myths to settle. It begins to become possible to look at the work independently of personality, and free from the aura with which it was first received.

Brancusi's sculptures are not well known in this country. There has never been a large exhibition of his work here and the Tate own only one, acquired quite recently. Nevertheless his reputation is very high among sculptors, art students and writers on art and has attained the status of myth.

Nothing has been done officially to celebrate his centenary in Britain. This is not surprising. The centenary of Kandinsky's birth in 1866 was celebrated with an L. S. Lowry exhibition in the Tate.

As it happened, however, a short film directed by Sean Hudson for the Arts Council has been completed in time for Brancusi's centenary. The idea for the film originally came from the sculptor and critic William Tucker, one of the few Englishmen to have seen and written on Brancusi's monumental works at Tirgu Jiu. Although it contains some good footage of these superb but extremely inaccessible works, the film emerges as a routine, competent art documentary.

The Arts Council gives money to film makers to make experimental movies but its documentaries about art and artists remain conventional and uninspired. One would have thought that the experimental approach of the 'better artists' films might have had some beneficial influence. In this particular case, repetition, shots held for several minutes, unconventional editing, time-lapse photography and so, would have emphasized the particular experience of the Tirgu Jiu sculptures more effectively than the conventional camerawork and editing of *The Romanian Brancusi*.

Brancusi's better-known heads, birds and animals are his realized products of the Parisian art world where he spent most of his working life. His real strength appears in some of his early 'rehearsals' for the Tirgu Jiu works like the first version of the *Endless Column* which he made for the American photographer Edward Steichen's garden in Paris. But it was only when he received the invitation to work on a monumental scale in Rumania that he was able to off completely the Parisian elegance and chic of his earlier sculpture and draw on the folk art of his own country in a daring and original way.

In his pedestals, his furniture, the early versions of the *Endless Column* and the monumental works at Tirgu Jiu, Brancusi was able to create a sculpture that was both abstract and concrete. He was able to achieve this by extending the vigorous curved wood tradition of his own country.

The monumental sculptures are all sited on an axis which runs through Tirgu Jiu, although they are on the outskirts to the north and south. The *Table and Gate of the Kiss* are in a small park to the North and the *Endless Column* in an open space to the South. The commission was a war memorial to commemorate the town's resistance against the Germans in the First World War.

The *Table of Silence* is at the northern extremity of this small, wooded park, separated from the wide, shallow, fast moving river Jiu only by an unpopulated path and a few trees on the river bank. It one sits on one of the stone stools facing the river one can see the water moving very quickly and hear it rushing over the pebbles. The town is very close and even in the later thirties one would have heard traffic noises beyond the park, where a bridge crosses the river. Yet the name *Table of Silence* is not stillness, in contrast to the ceaselessly rushing river, the gentle movement of the leaves, and the sounds of the town beyond.

A wide pathway flanked by chestnut trees leads from *The Table of Silence* to *The Gate of the Kiss*. This was originally earth and waterlogged and muddy in winter. It has recently been paved.

Along the path, beneath the chestnut trees, are 15 on each side, grouped in threes, the 'table' versions of the stools around the *Table of Silence*. Their form echoes that of the stools from which the *Endless Column* is made.

Although the *Gate* is massive—over 17 feet high, 21 feet wide and six feet thick—it is not overbearing and quite human in scale. Nevertheless, coming from the town, it forms an impressive 'triumphal' entry into the park, or from the park into the town. Like the 'table' and stools, it is carved from Bampton stone—quarried after the area in the locality from which it is quarried—its appearance slightly pitted and visually soft in texture, although in reality quite hard.

Paul Overy discusses some lesser known sculptures of Constantin Brancusi, subject of a new Arts Council film available on hire to universities and colleges

hard; its colour creamy white, warm and sympathetic.

To reach the *Column* one has to cross the road which flanks the park and go straight down the street opposite which forms a continuation of the axis from the *Table* to the *Gate*. This takes one through the centre of the town, past the modern hotel, across the main shopping street and out towards the outskirts. One would be able to see the *Column* in the distance from here, if it were not for the church of the Holy Trinity, a traditional Greek Orthodox in style, but dating from the 1920s—around which the road divides like a roundabout. (Brancusi wished to have the church demolished.) From the other side of the church the *Column* at last becomes visible.

From this point the road is rough and unmetalled. The houses on either side are suburban versions of the traditional peasant houses of the villages, interspersed with one or two modernist villas from between the wars. The road becomes dustier and dustier. About halfway between church and *Column* it is crossed by a railway line. There is no level crossing and one has to scramble across the tracks.

On the other side of the railway lines the untamed road is lined with small trees and criss-crossed with telephone wires from house to house which form a net of lines against the sky through which the *Column*, which can now be seen quite clearly in the middle distance, seems to shimmer and dilute, curiously unreal and elusive, like a mirage, or a stick seen underwater.



Brancusi's 'Endless Column' at Tirgu Jiu, Rumania.

Eventually the road opens out, or rather peters out, into the open area of common land, a hay market. The *Column* stands in the middle of a large circular grassed space with gravel paths leading off on four sides.

The *Column* is made of fifteen complete hedrons, each about six feet in height, cast in internal steel column made from welded plates of steel. The top is an additional complete hedron, which is an extra five feet high. The *Column* is a five-metre square block of concrete, hollowed out in the centre. It is a 'table' of the earth, developed a light lift from the vertical of a few degrees. If anything this ladder into the infinite. The shape of the *Column* is a gentle optical trick which helps, when close to it, does one realize the sheer size and weight of it. It is over 16 feet high. The *Column* was completed in the summer of 1939 with the application of several coats of liquid paint to protect the cast iron surface. Brancusi wanted to give it the colour of the *Column* in 1939. This was done by George Gorjan, the son of one of Brancusi's early friends and patrons. The two coats of liquid paint and sprayed with brass. Over the years this corroded and the surface became spotted with rust. It was repainted in 1965, but is now already looking quite worn again. It is due to be repainted once more under the supervision of George Gorjan, who now lives in retirement in Bucharest.

A hundred yards or so farther on, along what has become a path again, flanked with half-grown chestnut trees, is a smaller version of the *Table*, without seats. There is a great deal of controversy about this piece. The most reliable explanation is that it is an early version of the *Table*, rejected by Brancusi because it was imperfect. It was, apparently, found in the park where the *Table* and *Gate* are and placed in its present position beyond the *Column* a few years ago. There is no evidence that this is where Brancusi wanted it, or whether he wanted it as part of the ensemble at all. Nevertheless in its present position it forms an effective eye-drawer, echoing the *Table* and leading the eye down the path again from the archetypal 'full stop' of the *Table* to the *Column*.

Walking the mile and a half or so between these two versions of the *Table*, which now form the extremes of the axis on which Brancusi placed his monumental sculptures, is a memorable experience. One passes through Tirgu Jiu and out again. One is made aware of the texture of the small provincial town as the houses close in, the street grows more bustling, and then the urban texture gradually loosens and thins out once more.

One's feet move over various surfaces, concrete, asphalt, mud, railway lines, etc. It is a path that only a dedicated visitor who had works to follow. No inhabitant of the town is likely to take it in its entirety, or give one in a short space of time the sense of the organic structure of the town. Its variety and monotony. I'm sure that Brancusi had this partly in mind in aligning the works. He was well aware that the people of Tirgu Jiu would view the monuments in quite a different, more casual and off-hand way.

In an essay first published in *Studio International* (Thames and Hudson, 1974), William Tucker writes of the way in which the *Table* and *Gate* have been accepted by the local inhabitants as decorative elements in a public place, whose power as art, the capacity to surprise and disturb, has been drained off by habit and implied function. Yet it would be difficult to cite any instance of a public work of sculpture that does retain the capacity to surprise and disturb. The inhabitants of Tirgu Jiu probably do not look at the *Column* as a sculpture, but as a landmark, a disturbing work, although this does not mean that it has no effect on them. The sculpture is a disturbing quality of sculpture depends on its being seen every day. It can only be seen by someone who visits only occasionally the place where it is put.

Public sculpture works in a different way, if it is successful, not by surprising and disturbing, but as a sign or symbol which is consciously associated with a place. By the mid-thirties when Brancusi received the commission for the works at Tirgu Jiu, his increasing knowledge of human and universal forms had reached a point where it was possible for him to draw on the forms found in the ends and present them, as public sculpture.

Tucker, writing of the *Table of Silence* at Tirgu Jiu that 'its bivalent status between art and taste cannot be redeemed by the fact that the idea of a table inhibits the growth of an object as sculpture in inverse proportion to the idea of a table'—unleashed their sculptural invention in the craftsman Rietveld.

But there is no 'univalent status' between art and taste in the *Table*. The price to such a monumental and obviously functional work. This title is not porous, but in this writer's experience, conveys the intensity of feeling generated by the sculpture. Its symbolism is not a 'dressing' but integral to the conception and function as monument.

There is a sense of contrast of the kind that exists between Brancusi's work and that of the functional object. The *Table* is no 'Chair' or a 'comfortable' armchair. Both are essentially works of sculpture, sculpture and each in their different way the twentieth century.

It is not at all easy to get to see these works at Tirgu Jiu. Their frequency in photography and description. They are a rightness in their own right. They have a peculiar ease to convey, by still pictures, the sense of a film should be better able to see them, a meaning of the experience of relationship to their environment. Unfortunately this *The Romanian Brancusi* largely fails to do.

The author is a part-time tutor at the Royal College of Art, and art critic of *The Times*.

Making more room at the top

Not only are few chosen, but many are not even called. So if the call does come, it is a shape of an offer of a public office, a television appearance, or inclusion in a Who, it is a rash man who rejects it.

There is however one call that is not to be ignored, and that is one from the national biographical Centre, publisher of the *Dictionary of International Biography*. Men of Achievement and a list of references. Letters may well be sent in one of their volumes, but my own interest in saving the ink means I do not.

This is not to suggest that there is anything dishonest about the biographical Centre. Money is made from the sale of the biographies for inclusion in the volume, then never appear. I must, however, include in, for example, a mention cannot be bought, nor is there any obligation to buy copies.

In fact, as the preface to the volume says: 'It cannot be emphasized enough that inclusion in *Men of Achievement* is a privilege, not a right. It is not an obligation to purchase copies. On the other hand, biographies can fill in the under: "I want to take advantage of special concessions offered to me".

The wider the net for biographies spread—there were nearly 6,000 in the edition—the more potential inclusion of the people included in the volume. The more the more people included in the volume, the more the more people included in the volume.

This year's *Men of Achievement* (published by the biographical Centre) is a splendid title that is, with its list of names, a long-term investment. It is a long-term investment. It is a long-term investment. It is a long-term investment.

The relatively sudden end of the period of expansion of higher education has had the major effect of leaving a more or less complete vacuum in long-term or even medium-term perspectives. But higher education is a long-term business: it takes several years to plan a new course or department, another three or four years before the first graduates emerge, and several more years before they make a significant impact on our social, cultural or economic life.

Higher education lives by innovation, as it is concerned with making use of rapidly changing knowledge in a rapidly changing society. Unless it innovates in its content, and in the application of this content, as well as continually attract wider sections of society, it is liable to degenerate, or at best become a means of stabilizing existing cultural, social and economic hierarchies (which is not the same thing as stabilizing the society in which it develops).

This process of innovation has in this past century, required a continuous expansion of resources for

higher education in real terms. Indeed an increasing proportion of the Gross National Product. The sudden loss of a future perspective of expanding resources, without concurrent increases in content, method, organization and objectives, can threaten to lead to the kind of degeneration mentioned above.

The effects of the squeeze on the finances of higher education can be classified into two parts, the effects on the consumers—or potential consumers—of higher education, and those on the institutions of higher education. To some extent the effect on the academic and other staff has been the characteristics of both.

With respect to the consumers, probably about the same proportion of the actual applicants for higher education courses will secure admission in the immediate future as at present.

But the acceptance of the reduced level of demand, without pursuing positive measures to reverse it, will mean that the proportion of working-class students will not rise, and will possibly even diminish.

In a number of ways, it will be a tougher life for the students. They will, for example, face a reduced real value of grants, and the disruptive effect of fees on certain sections of students. If mandatory grants are not extended, including the extension to repeat years of courses.

Students are also likely to face some reduction in service through lower staff/student ratios, delays in buildings, and so on, and there will possibly be less choice of options in postgraduate or those whose course expenditure will be reinforced.

The very high level of fees will act as an extremely powerful factor influencing the decisions of those students not on mandatory grants, such as a significant minority of postgraduates or those who have to repeat a year's study.

The effects on the institutions are likely to include uncertainty about the future stability of their financial position, a reduction in the possibilities of innovation in courses and research, and reinforcement of conservative tendencies towards traditional courses and specialization.

The institutions will also face a reduction in the possibility of expanding higher education to wider sections of the population, and a reduction in international perspectives and links with the international world of learning.

It should be noted that the effects on the institutions are mainly in the loss of medium and longer-term perspectives; essentially it is the application of this content, and in the application of this content, as well as continually attract wider sections of society, it is liable to degenerate, or at best become a means of stabilizing existing cultural, social and economic hierarchies (which is not the same thing as stabilizing the society in which it develops).

The student campaign is likely to be concerned with the possibility of obtaining rapid changes in government policy. Students have, after all, only a relatively short

time to spend on their studies. The diminishing value of the student grant, and the rapidly increasing price of many books, have raised considerable questions about the present economic situation may be affecting the book-buying habits of students.

Some indication of this is provided by the findings of a survey conducted among 500 full-time and part-time degree and sub-degree level students, on arts/business studies courses at Sheffield City Polytechnic in May.

The first result to emerge was that the average estimate of the student grant was £25, less than the actual amount of £30. As the range of estimates was from £10 to £70 it is clear that students have very little idea of the importance of the book allowance. This provides good grounds for thinking that the DES should publicize the correct figure.

Secondly, on average the maximum amount which students were willing to spend on books during one academic year was £29, noticeably less than their estimates of the grant component allowed for book purchase. Nevertheless 24 per cent of the sample expressed a willingness to spend more than £30, and as much as £50, which would be a book allowance which provides for the purchase of a substantial number of books.

When these students were asked

to explain why they were unwilling to spend as much as they thought was allowed for book purchase in the student grant, the almost universal reply was a shortage of funds. Of more significance perhaps was the reiterated point that they were unwilling to buy a book which did not cover a substantial component of a course.

A further result of the survey was to show that on average students actually spent a total of only £13 on books, very much less than their theoretical maximum. In only 3 per cent of cases did students spend more than their theoretical maximum, and in only a further 2 per cent of cases did they spend the same amount. This suggests that whereas most students accept that they should be buying more books, they are very reluctant to part with the money unless put under pressure to do so.

No books were bought on 20 per cent of all courses followed. Given that the library is clearly unable to provide for the textbook needs of courses of 50 or more students, this figure again suggests the need for more significant action to be taken about whether students have proper access to recommended texts.

When asked how much they would be willing to pay at most for an individual text, less than 10 per cent put the figure at under £5. Just over 50 per cent of the sample quoted figures between £5 and £10, which is a realistic estimate

at current prices since books priced at over £5.50 are still comparatively rare in most subjects.

More surprisingly, 11 per cent of the sample claimed to be willing to spend over £7 on a single text. However, only one in 10 of these actually spent over £5, in practice on one book, the most spent was £7.50, and the least a remarkable £1. The average among this group was only £4, which casts doubts upon their assertion, especially since 55 per cent of this total sample spent £4 or more on a single text. This latter figure suggests that

Working-class disillusion with education's rewards

Ted Edwards discusses how the cuts will affect the quality and provision of higher education

Higher education in real terms. Indeed an increasing proportion of the Gross National Product. The sudden loss of a future perspective of expanding resources, without concurrent increases in content, method, organization and objectives, can threaten to lead to the kind of degeneration mentioned above.

The effects of the squeeze on the finances of higher education can be classified into two parts, the effects on the consumers—or potential consumers—of higher education, and those on the institutions of higher education. To some extent the effect on the academic and other staff has been the characteristics of both.

With respect to the consumers, probably about the same proportion of the actual applicants for higher education courses will secure admission in the immediate future as at present.

But the acceptance of the reduced level of demand, without pursuing positive measures to reverse it, will mean that the proportion of working-class students will not rise, and will possibly even diminish.

In a number of ways, it will be a tougher life for the students. They will, for example, face a reduced real value of grants, and the disruptive effect of fees on certain sections of students. If mandatory grants are not extended, including the extension to repeat years of courses.

Students are also likely to face some reduction in service through lower staff/student ratios, delays in buildings, and so on, and there will possibly be less choice of options in postgraduate or those whose course expenditure will be reinforced.

The very high level of fees will act as an extremely powerful factor influencing the decisions of those students not on mandatory grants, such as a significant minority of postgraduates or those who have to repeat a year's study.

The effects on the institutions are likely to include uncertainty about the future stability of their financial position, a reduction in the possibilities of innovation in courses and research, and reinforcement of conservative tendencies towards traditional courses and specialization.

The institutions will also face a reduction in the possibility of expanding higher education to wider sections of the population, and a reduction in international perspectives and links with the international world of learning.

It should be noted that the effects on the institutions are mainly in the loss of medium and longer-term perspectives; essentially it is the application of this content, and in the application of this content, as well as continually attract wider sections of society, it is liable to degenerate, or at best become a means of stabilizing existing cultural, social and economic hierarchies (which is not the same thing as stabilizing the society in which it develops).

The student campaign is likely to be concerned with the possibility of obtaining rapid changes in government policy. Students have, after all, only a relatively short

time to spend on their studies. The diminishing value of the student grant, and the rapidly increasing price of many books, have raised considerable questions about the present economic situation may be affecting the book-buying habits of students.

Some indication of this is provided by the findings of a survey conducted among 500 full-time and part-time degree and sub-degree level students, on arts/business studies courses at Sheffield City Polytechnic in May.

The first result to emerge was that the average estimate of the student grant was £25, less than the actual amount of £30. As the range of estimates was from £10 to £70 it is clear that students have very little idea of the importance of the book allowance. This provides good grounds for thinking that the DES should publicize the correct figure.

Secondly, on average the maximum amount which students were willing to spend on books during one academic year was £29, noticeably less than their estimates of the grant component allowed for book purchase. Nevertheless 24 per cent of the sample expressed a willingness to spend more than £30, and as much as £50, which would be a book allowance which provides for the purchase of a substantial number of books.

When these students were asked

to explain why they were unwilling to spend as much as they thought was allowed for book purchase in the student grant, the almost universal reply was a shortage of funds. Of more significance perhaps was the reiterated point that they were unwilling to buy a book which did not cover a substantial component of a course.

A further result of the survey was to show that on average students actually spent a total of only £13 on books, very much less than their theoretical maximum. In only 3 per cent of cases did students spend more than their theoretical maximum, and in only a further 2 per cent of cases did they spend the same amount. This suggests that whereas most students accept that they should be buying more books, they are very reluctant to part with the money unless put under pressure to do so.

No books were bought on 20 per cent of all courses followed. Given that the library is clearly unable to provide for the textbook needs of courses of 50 or more students, this figure again suggests the need for more significant action to be taken about whether students have proper access to recommended texts.

When asked how much they would be willing to pay at most for an individual text, less than 10 per cent put the figure at under £5. Just over 50 per cent of the sample quoted figures between £5 and £10, which is a realistic estimate

at current prices since books priced at over £5.50 are still comparatively rare in most subjects.

More surprisingly, 11 per cent of the sample claimed to be willing to spend over £7 on a single text. However, only one in 10 of these actually spent over £5, in practice on one book, the most spent was £7.50, and the least a remarkable £1. The average among this group was only £4, which casts doubts upon their assertion, especially since 55 per cent of this total sample spent £4 or more on a single text. This latter figure suggests that

lecturers should not be over-reliant to recommend the purchase of books at over £4. Perhaps if this were to happen, the average expenditure figure of £13 would be boosted to a more realistic figure.

The average expenditure on books per subject was £2.60, not much as today's prices. Again perhaps this suggests lecturers' reluctance to recommend book purchase.

When asked what they thought to be a fair price for a 200-page textbook, 46 per cent of the sample quoted £1 or less and 60 per cent £1.50 or less. This suggests a certain reluctance to face up to the realities of current book prices, which with the exception of high print run editions such as Penguins, are generally of the order of 1p per page in paperback form.

The decision whether or not to buy a book is influenced more by whether it was listed as required reading, which again suggests that lecturers can induce a greater degree of book purchase if they encourage its contribution to the successful completion of a course.

The other factors in declining order of importance were respectively a book's value for money, its availability in library copies, and the number of books a student had bought by a friend.

Whereas a student chose not to buy a book, later acquired reading he looked almost universally, as one would expect, to the library as an alternative source of supply.

It is, frankly, rather disturbing that students in the arts, and especially degree level students, should assign such a low priority to the acquisition of books. Little behind other EEC countries in per capita expenditure on books of all kinds when even students in the higher education sector are allowed to regard the purchase of books as a residual item in their expenditure.

Peter Curwen

The author is senior lecturer in Economics at Sheffield City Polytechnic.

The reading gap—or why students spend an average of £13 a year on books

lecturers should not be over-reliant to recommend the purchase of books at over £4. Perhaps if this were to happen, the average expenditure figure of £13 would be boosted to a more realistic figure.

The average expenditure on books per subject was £2.60, not much as today's prices. Again perhaps this suggests lecturers' reluctance to recommend book purchase.

When asked what they thought to be a fair price for a 200-page textbook, 46 per cent of the sample quoted £1 or less and 60 per cent £1.50 or less. This suggests a certain reluctance to face up to the realities of current book prices, which with the exception of high print run editions such as Penguins, are generally of the order of 1p per page in paperback form.

The decision whether or not to buy a book is influenced more by whether it was listed as required reading, which again suggests that lecturers can induce a greater degree of book purchase if they encourage its contribution to the successful completion of a course.

The other factors in declining order of importance were respectively a book's value for money, its availability in library copies, and the number of books a student had bought by a friend.

Whereas a student chose not to buy a book, later acquired reading he looked almost universally, as one would expect, to the library as an alternative source of supply.

It is, frankly, rather disturbing that students in the arts, and especially degree level students, should assign such a low priority to the acquisition of books. Little behind other EEC countries in per capita expenditure on books of all kinds when even students in the higher education sector are allowed to regard the purchase of books as a residual item in their expenditure.

Peter Curwen

The author is senior lecturer in Economics at Sheffield City Polytechnic.

It is, frankly, rather disturbing that students in the arts, and especially degree level students, should assign such a low priority to the acquisition of books. Little behind other EEC countries in per capita expenditure on books of all kinds when even students in the higher education sector are allowed to regard the purchase of books as a residual item in their expenditure.

Peter Curwen

The author is senior lecturer in Economics at Sheffield City Polytechnic.

It is, frankly, rather disturbing that students in the arts, and especially degree level students, should assign such a low priority to the acquisition of books. Little behind other EEC countries in per capita expenditure on books of all kinds when even students in the higher education sector are allowed to regard the purchase of books as a residual item in their expenditure.

Peter Curwen

The author is senior lecturer in Economics at Sheffield City Polytechnic.



SCAB

UNIVERSITY BOOKSHOP

A special case when the affluent society falls on hard times

The fashion for five-year planning of public expenditure which was first suggested by the Bowden (Lord of the Admiralty) committee in 1951 and has been in active operation off and on since 1959 has been almost entirely beneficial—except in one crucial respect. It encourages politicians and the general public to lump all public expenditure together.

It encourages them to treat investment in opening up a new coal mine in the same way as building a Polaris submarine, or training a doctor, as maintaining an ancient monument. Public services, transfer payments, nationalized industries, all are regarded as part of that new Leviathan, "public expenditure". Above all, in a time of austerity like the present, it encourages the naive *Animal Farm* view that public expenditure is wealth-consuming (i.e. bad) while the private sector of the economy is wealth-generating (i.e. good).

Of course, this is nonsense. The National Health Service can only be regarded as wealth-consuming by those who seriously argue that our present level of civilization, both material and spiritual, could be maintained without a sophisticated system of health care. Once the need for such a system has been accepted, it makes little economic difference whether it is provided through the State or the private market (although it can be argued that the former method inflates demand while the latter is more cost effective).

With higher education it is the same. It is no more a burden nor less an asset because it is almost entirely dependent for its income on public funds. A private system of universities and colleges of equal size and similar character would be almost equally parasitical or beneficial to the national economy. In fact, if universities and colleges were supported entirely from private sources rather than by grants from the University Grants Committee and tuition fees from local authorities and tuition fees from local authorities and tuition fees from local authorities, the difference would be that the latter would be determined far more by economic status and far less by intellectual ability.

At this point a lot of people, including apparently Mr. Callaghan, will disagree. They will argue that public services, such as higher education, are provided from revenue which has been produced by taxing the profits of private enterprise. True, but only up to a point because without sophisticated public services the direct costs borne by private enterprise would be much higher. To assume that making profits is the same thing as country is clearly a mistake. Anyone can think of activities, such as pop music, which are presumably profitable but are hardly productive in a direct sense. With only a little more thought activities, like the training of engineers or doctors, which are hardly profitable but are certainly productive, can be brought to mind.

Part of the reason for this confusion is the PESC (Public Expenditure Survey Committee) system itself. It has introduced a harsh and at times artificial dichotomy between public and private spending. Before PESC came along, we needed more higher education. After PESC they are encouraged to ask more considered and more fundamental research in physics or more technical questions, like do we need more school teachers? One result has been that public services have been put at each other's throats.

In a time of austerity like the present when the national cake is providing much more than the national appetite, it is more important than ever not to concentrate so much on the wood that we fail to notice of which the wood is only part. What is required is both much more comprehensive distribution between all types of spending, more detailed scrutiny of individual items of public expenditure standing by themselves. The former falls outside the scope of *The Times*; the latter is the very centre of our concern. It is in these areas that we seek the question: is higher education a special case? That phrase is not used in the other specialized industrial relations context of critical years. Nor does its use imply any support for the special pleading of interest groups which find it difficult to disengage themselves from the national interest. The question is much more straight-

forward: what is the value of higher education to an economy that is affluent and sophisticated and a society that is progressive and civilized?

There are three broad aspects of the value of higher education.

First, research. It seems almost superfluous to point out that the profitable operation of industry and commerce depends often on technological progress, which in turn depends in many cases on fundamental scientific discovery. So the drying up of the sources of scientific discovery, which is one higher education spending, will lead inevitably to the enfeeblement of technological progress and possibly to the impoverishment of industry. Similarly its efficient management owes a great deal to new techniques imported from the social and behavioural sciences.

Of course, higher education does not enjoy a monopoly of discovery but it is perhaps its largest single source. In particular it is the major source of discovery which does not appear to have profitable applications in the short term. Some may argue that it is the business of the research council to fund worthwhile research on a sufficiently generous scale. True up to a point, but three important qualifications must be borne in mind. First, except in a few cases support for research is only partial because it is assumed a lecturer or researcher will conduct research for part of his time anyway and the UGC grant is calculated on the assumption. Then the research and the teaching functions of higher education cannot be separated. For example, heady research depends on a postgraduate student. Also some kinds of research, particularly in the humanities, cannot be directed by a research-council-type operation, but must rely more on the enterprise of the individual scholar.

Secondly, teaching. Again it seems superfluous to point out that British universities (certainly) and colleges (probably) are among the most efficient teaching units in higher education anywhere in the world. Most other systems of higher education are cheap, diffuse and inefficient: the British

is expensive, intensive and efficient. It is very important to recognize that this is not a crude measure of cost but a measure of all efficiency (the high-quality products produced by the resources applied to their production). So moves to make British higher education cheaper would not necessarily be more efficient. Already the universities in many university departments are more efficient than the pupil/teacher ratio in many school or college departments. Educational or economic sense would remember that universities, and particularly teachers, are also expected to conduct research.

Finally, there is the cultural dimension of higher education, and of the university in particular. This is so fundamental that it is in danger of being taken for granted. Two examples: the university of the advanced education to the young of the population. In a free society the autonomy of universities is a cultural significance.

The study of evolution, of course, is also concerned with understanding the diversity of natural forms and their origin, but over a longer time-span than the life of a single individual. It is not, therefore, surprising that the theoretical thought about individual development should be closely related to thought about evolution.

Two main lines of approach can be distinguished within modern developmental biology. The first—and probably the most popular—can be called the molecular biology or genetic approach, and is based upon a theory of inheritance, asserting that the developmental processes are essentially directed by one part of the organism, namely the genetic material in the cell nucleus—the DNA. The study of development is therefore seen as the study of the control of the expression or activity of the DNA.

The second approach—which I shall refer to as the field approach—is more difficult to characterize briefly and not all its practitioners would agree on what its goals were, or that it could be sharply distinguished from the molecular biology approach. In my view its essential characteristics are firstly that it sees development as a result of the totality of interactions within the organism, and secondly, that it sees development as the outcome of a form-generating process which has its own rules or laws which are (hopefully) universal; the aim of research is to discover these laws.

Both of these approaches have their origin in the ferment of debate over the Darwinian theory of evolution which occurred in the second half of the nineteenth century.

Charles Darwin had argued that existing organic forms were blood relations which had arisen by descent from common ancestors. The fact that these forms could be classified into distinct groups sharing a common structural plan—such as the vertebrates—was to be explained on the basis of common ancestry, in other words, in terms of inheritance.

The existence of a diversity of forms within each group was to be explained by the concept of natural selection, by which those various forms which were (fortuitously) best adapted to the conditions in which they found themselves would be produced by the struggle for existence, so that the adaptive characteristics would be perpetuated in their offspring.

Within Darwinian theory, organic form is seen as a set of variations on a theme or themes, which can be explained in historical terms, in other words in terms of inheritance on the one hand, and in utilitarian terms—those which are best adapted to the conditions in which they find themselves—on the other.

For some of the extreme Darwinians, the new theory seemed to have solved the problem of form completely, both from the perspective of evolution, and from that of individual development.

The reaction against this extension of Darwinian theory—and with it the foundation of modern developmental biology—began in Germany towards the end of the nineteenth century, and was part of a widespread reaction against the historicism of the late nineteenth century. "Back to Kant" was the slogan of the day, and among the philosophers, it was also among the younger biologists.

In the 1870s Haeckel and Goette, for example, made a sharp distinction between the historical and scientific way of thinking, and insisted that a really scientific—that is a polytechnic work—necessarily begins with the study of the development of the organism, and that the historical way of thinking is a mere historical curiosity.

It was a pupil of Goette's, Wilhelm Roux, who in the 1880s formulated the research programme of the new developmental biology, which was to be analogous with the research programme of Kant's paradigm science, Newtonian physics (thereby explicitly rejecting Kant's assertion concerning biology that there would never be a "Newton of the grass").

What was required, Roux argued, was a developmental mechanics, analogous to classical mechanics which would employ the same procedures of analysis and synthesis. In other words, explanation should consist of conceptual elaboration of the phenomenon in question from its law-governed components.

Gerry Webster suggests that developmental biology may lead to a conceptual revolution in biology

Is the development of form the clue to evolution?

A central problem facing modern biology is how matter is organized into different types of living organisms, each type having a specific form and structure, and capable of behaving in a specific way.

An organism—an organized being—consists, according to the Oxford English Dictionary, of "mutually connected and dependent parts, constituted to share a common life". Developmental biology is concerned with understanding a particular facet of biological organization, that relating to an organism's form and structure.

Studying the development of an organism presents us with the problem of biological organization in a way that we cannot escape, concerned as it is with the origin of a new individual of specific form, whether from an egg or from some other part of an adult organism.

The study of evolution, of course, is also concerned with understanding the diversity of natural forms and their origin, but over a longer time-span than the life of a single individual. It is not, therefore, surprising that the theoretical thought about individual development should be closely related to thought about evolution.

Two main lines of approach can be distinguished within modern developmental biology. The first—and probably the most popular—can be called the molecular biology or genetic approach, and is based upon a theory of inheritance, asserting that the developmental processes are essentially directed by one part of the organism, namely the genetic material in the cell nucleus—the DNA. The study of development is therefore seen as the study of the control of the expression or activity of the DNA.

The second approach—which I shall refer to as the field approach—is more difficult to characterize briefly and not all its practitioners would agree on what its goals were, or that it could be sharply distinguished from the molecular biology approach. In my view its essential characteristics are firstly that it sees development as a result of the totality of interactions within the organism, and secondly, that it sees development as the outcome of a form-generating process which has its own rules or laws which are (hopefully) universal; the aim of research is to discover these laws.

Both of these approaches have their origin in the ferment of debate over the Darwinian theory of evolution which occurred in the second half of the nineteenth century.

Newton completed the work begun by Galileo in formulating the three component laws of motion—abstract laws—which enabled him to synthesize all forms of motion, and to show, for example, all planetary orbits could be generated from the same simple laws.

By analogy, Roux argued that the developmental process must be analysed, both conceptually and experimentally, into a small number of component processes whose laws could be discovered.

Once in possession of these laws of form, all the diverse and specific organic forms could be generated conceptually, and thus explained. Such explanation would be scientific, since its terms would be universal and necessary, not particular and contingent as in the historical evolutionary explanation.

Roux's programme was adopted by many of the younger biologists in Germany and soon after elsewhere, but did not remain in its original form for very long. On the one hand it became entangled with a specific theory of inheritance, which resulted in a profound modification of its original goals.

On the other, it ran into severe conceptual difficulties when it became apparent that there was more to the developmental process than had been dreamt of in classical mechanics.

The latter realization eventually resulted in the loss of faith in the possibility of general theory of development, and a consequent concern solely with amassing empirical data.

Responsibility for bringing about these changes, both directly and indirectly, lies chiefly with August Weismann, a key figure in the development of modern biology. Weismann's main interest was in evolution theory, and in the 1880s he proposed a theory of inheritance which was designed to "save" Darwinism and refute the increasingly popular Lamarckian alternative.

Weismann's theory was based on the concept of "continuity of the germ-plasm". The basic idea was that the germ cells (eggs and sperm) were not derived at all, so far as "their essential and characteristic substance" was concerned, from the body of the parent organism, but from the parent germ cell. The body of the organism in this view is merely a sort of offshoot from each generation of a continuous line of self-reproducing germ cells.

The theory that there is a sharp distinction between germ-plasm and body, in which the former has two distinct properties, that of reproducing itself and producing the body, is central to the modern formulation of Darwinian theory, where it appears as the distinction between genotype and phenotype.

Implicit in Weismann's theory is a concept of development, since the body of the organism is supposed to be produced by the germ-plasm. Weismann located this germ-plasm in the nucleus of the germ cells, which contained "a substance that by its physical and chemical properties is able to become a new individual of the same species". Here is the central assertion of the molecular biology approach to development, the idea that development is the production by one part of the organism, the hereditary material in the cell nucleus.

According to modern molecular biology the germ-plasm (the DNA) determines the structure of proteins; organisms are made out of proteins which also play a major role in their chemical activities. Different sorts of proteins (muscle, blood, and so on) are characterized by different proteins.

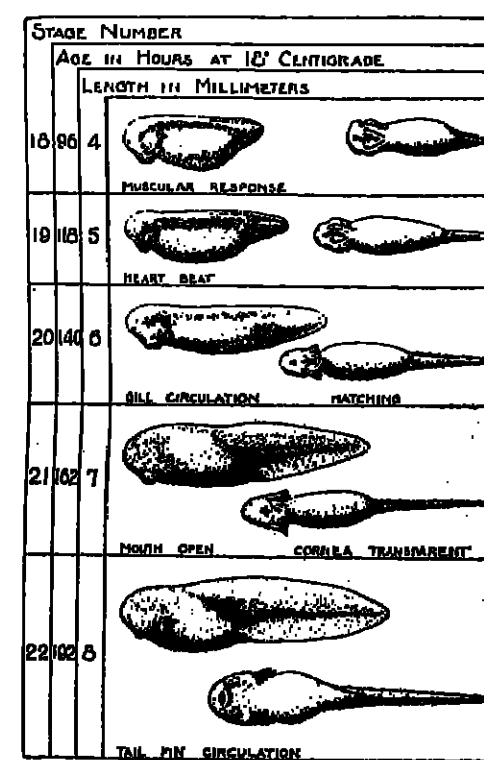
Development is therefore seen as the production of different types of cells (i.e. proteins) and therefore of differential expression of the information contained in the DNA in different parts of the embryo. Development is controlled by the "genetic programme" which is self-reproducing, and is the historical product of evolution by natural selection.

But what, one may ask, of the problem of specific form? Has this approach shed any light on this problem, and is it likely to? In my view, the answer to both these questions is no, and my reasoning for thinking this is based on the nature of the research programme as regards both its basic assumptions, and the specific questions which it poses.

Firstly, this research programme sees development as the expression of the hereditary material—the "genetic programme". Its starting point is not the specific problems presented by the phenomena of development, but a theory of inheritance, which in its general form—the idea that hereditary transmission is effected by one part of the organism, the nucleus—derives from a mechanistic, almost mechanistic, paradigm.

The justification for taking this as a starting point is the belief that we already have a complete understanding of the mechanism of inheritance. However, it must be remembered that the modern theory of inheritance is an inference based on the experimental study of one particular aspect of inheritance, that of small differences between closely-related organisms.

There is no compelling reason to believe that this is necessarily a complete picture of inheritance, and in fact in some unicellular



Stages in the development of the frog tadpole, reproduced from *Explorations in Developmental Biology* by Chandler Fulton and Attila O. Klein (Harvard University Press, £11.90).

lar organisms hereditary processes are known which do not involve the nucleus and are not Mendelian.

This is not to deny the obvious importance of the nuclear genome in the developmental process, but to show that something is necessary is not to show that it determines or controls a process. The belief that the developmental process is directed by one part of the organism—the nucleus—is a working hypothesis, not an established part of knowledge.

Secondly, the emphasis in the molecular biology research programme is on the production of the materials out of which the organism is constructed, but this clearly evades the problem of form, which is concerned with the organization of the materials. No theoretical provision is made for the formulation of the rules or laws governing the developmental process. The belief that the developmental process is directed by one part of the organism—the nucleus—is a working hypothesis, not an established part of knowledge.

Thirdly, however, will not do. The type of phenomenon which has to be explained is the difference between, say, a hand and a foot, which consist of the same materials (muscle, bone, cartilage, and so on) but arranged in different patterns; it is this arrangement which has to be explained. Such concern with the laws of form is precisely what is missing from the molecular biology research programme, and it is in this respect that it has deviated most profoundly from Roux's original research programme.

Something approaching a full appreciation of the problem of form, in fact, can only be found within the alternative research programme, that which I have called the field approach. This is, in many respects, much closer to Roux's original programme as regards its goals, but its conceptualization of the problem stems from the work of the third great figure of the late nineteenth century, Hans Driesch.

Driesch showed that the developmental process could not be understood as a relatively simple causal mechanism, which could be explained in a straightforward mechanistic fashion. He was able to demonstrate experimentally that any given part of the embryo has the potentiality to produce a much wider range of adult structures than it actually produces in the undisturbed state.

Thus if an early sea-urchin embryo is cut in two, each half produces a complete sea-urchin larva of typical form but only half size. The missing parts of each half are restored by the reorganization of the remaining material.

Driesch concluded from this that the developmental fate of any part of the embryo is not determined by its history—the position in a temporal sequence of causal events—but by its position in space. Moreover, the embryo has powers of self-regulation; the normal goal of a typical form is attained by means of experimental perturbation.

It is now known that virtually all developing systems (of their parts) have these properties at some stage of development, and similar properties are present in many adult organisms, which have the power of regenerating missing parts to restore the normal form.

Such systems are now referred to as field systems, by analogy with physical fields. These are areas of space in which activities are co-ordinated or unified in some way with respect to a given goal, and which possess properties of wholeness and are not simply aggregates of independently moving parts. In other words, developing systems are themselves organisms, in the sense of the OED definition.

The results of Driesch's work could not be accommodated within the theoretical structures of developmental mechanics, leading to a theoretical vacuum, and consequently to work largely devoted merely to the accumulation of factual information.

Only within the last 15 years or so has a research programme come into being which attempts in a systematic way to come to grips with the development of form in field systems. This programme has been the result, in part, of a reaction against the intellectual hegemony of the molecular biology programme, and any future history of the subject will have to do justice to the influence of the late C. H. Waddington.

For the present, it is sufficient to single out Lewis Wolpert as a key figure in its development, since he has provided a body of critical theoretical writing which, whatever its ultimate fate, has undoubtedly served to focus the research activities of a number of contemporary biologists.

From his earliest work, Wolpert has been concerned to renew the research programme of developmental mechanics, which is goal of universal principles of development, and the formulation of the rules or laws governing the developmental process. Taking literally Driesch's contention that the developmental fate of a part of the system is a function of its position within the whole, he has proposed a hybrid theory of development which sees it as a process in which the expression of genetic information is controlled with respect to position.

The embryo is supposed to possess within itself a coordinate system—or "map"—which determines the spatial arrangement of specific materials, and the process of regulation following experimental interference is supposed to be concerned essentially with the restoration of this "map". Much work, both theoretical and experimental, is now going on in an attempt to investigate the nature of this positional information, how it is established and regulated following perturbation, and how genetic information is expressed in relation to it.

Within this general perspective it has already been possible to formulate at least tentatively some general rules or laws. For example, Peter Lawrence in Cambridge has formulated, in terms of an analogical model, the rules governing the polarity (that is the organization which expresses itself as head versus tail or anterior versus posterior) of some insect systems. These rules have since been found to be valid for a wide range of animal forms.

Following on from this work, Vernon French in London and the Bryans in California have very recently formulated a set of rules which govern the regeneration of the limbs of two very different types of insect and of the amphibians. These rules enable them to predict with remarkable accuracy the results of experiments which produce abnormal and quite complex limb structures.

Of course, these advances in knowledge raise new problems. First, there is the problem of how these formal rules could be "embodied" in the biochemical machinery of the organism and, therefore, how knowledge of them can be related to the sort of knowledge produced by the molecular biology programme.

Secondly, there is the much more important and difficult problem of how this whole approach, which seeks to explain form in terms of the "logic" of the developmental process, can be related to the historical problem of evolution, which seeks to explain the diversity of forms in terms of their descent from common ancestors.

It would be idle to pretend that a complete solution of the problem of specific form was within sight. Nevertheless, some aspects of the research programme are beginning to become intelligible and this suggests that it may, perhaps, be possible to realize the goal outlined by the nineteenth century founders of the modern approach; that is a Kantian science of form in which phenomena are synthesized by means of concepts.

If such a goal were to be achieved and this aspect of biological organization understood, our concepts of inheritance and evolution might well undergo profound modification.

The author is lecturer in developmental biology at Sussex University.

LETTERS TO THE EDITOR

In defence of engineering

from Mr A. R. Oliver

Sir—I am compelled again to engage in defence of the engineering industry. Your report on Mr C. A. Carter's address to the Economic Section of the British Association draws my fire (*The Times*, September 24).

He asserts that scientists and technologists, apart from their accepted employment in research, development and production, should be employed in other functions, such as production and marketing. I can assure him that in the engineering industry this is the rule, particularly when the products are complicated. It is essential in technological engineering that the marketing man, for instance, is an engineer first and a salesman second.

May I point out that nine out of 10 suitable persons interviewed for research and development jobs will opt for research and development. My view is that these jobs are far easier than that of production, and really provide a soft option for the person concerned.

Mr Carter seems to ignore the fact that industry needs to produce goods which are marketable and profitable. Engineering excellence in itself is only an intellectual exercise for technologists. A product needs to be made to a standard only as good as that required. One does not make Rolls-Royce motors for the Ford Escort market. Science and technology cannot flourish in industry on their own.

They can only contribute towards the end result, which is a satisfactory

industry profit. It follows that the main requirement of management is to make a profit, having regard to current social and moral standards. It is questionable whether advanced training in science and technology will (a) develop this if it exists, and (b) improve it if it exists to a lesser degree.

However, I must agree that an adequate standard of university and technical education should be maintained together with some understanding of science should be commensurate with the level of education to the age of 18. Also, that an unashamedly slanted education for the highest level of ability should be implemented. All educationalists should realize that the majority of people will be required to perform repetitive and comparatively simple jobs for all of their working lives. For most people this is acceptable, provided that they have not been "brain-washed" into looking towards a job or skill which is beyond their capacity.

Lastly, may I remind Mr Carter that although it is desirable that the public sector should be able to provide a high standard of education, it is equally desirable that the private sector should be able to provide a high standard of education, and that the public sector should be able to provide a high standard of education, and that the private sector should be able to provide a high standard of education.

Mr Peter Hillis, in his article (*The Times*, September 17) made an interesting reading and brought to mind the fact that the public sector should be able to provide a high standard of education, and that the private sector should be able to provide a high standard of education.

Mr Peter Hillis, in his article (*The Times*, September 17) made an interesting reading and brought to mind the fact that the public sector should be able to provide a high standard of education, and that the private sector should be able to provide a high standard of education.

Polytechnic research

from Mr M. B. Brodie and Dr R. D. Bennett

Sir—Patrick Nuttgens takes a disappointingly narrow, somewhat distorted view in his article (*THE TIMES*, September 27) on research not being "fundamental" for a polytechnic. While entirely agreeing with him on the help we should give in solving problems, his thinking on the research contribution to this process appears to be coloured by an unduly private concept that research is a private affair, is tied to a subject, and is a remote activity done in libraries.

Research may or may not be fundamental to one's conception of the polytechnic as an institution. It is, however, fundamental for effective adult learning for rigorous intellectual standards and for grappling with those problems—often central to society—to which traditional research has made too little contribution.

The question is, therefore, not whether research per se is fundamental (as necessary) but which research should be done. It is not a matter of "what should be the distribution of research in the further education sector. Your sincere education sector, M. B. BRODIE, DENN.

R. D. BENNETT, Research coordinator, Thames Valley Regional Management Centre, Wellington Street, Slough.

from Mr Alan Munslow Sir—I was with alarm and dismay that I read Patrick Nuttgens' article (*THE TIMES*, September 27). He admits, problem solving research, in the first place, before he admits that it is not of critical importance particularly in the social sciences. For Nuttgens to suggest that the main

"pursuit of his application skills" seems wrongheaded. The other lefty aim of polytechnic research is the achieving of a better standard of living for the masses or polytechnics. To argue that research is to be done with an ivory tower attitude, best native and at worst native, is to take care of the worst.

Yours sincerely, ALAN MUNSLOW, Department of modern studies, North Staffordshire Polytechnic.

from Dr J. A. Simmons Sir—It is unfortunate that Nuttgens (*THE TIMES*, September 27), having disposed of one research "teaching research" should replace it by another. In suggesting that there is a conflict between solving problems and producing theses he ignores the fact that the research process is a continuous one, and that the research process is a continuous one, and that the research process is a continuous one.

Certainly many of the polytechnic work, necessarily begins with the study of the development of the organism, and that the historical way of thinking is a mere historical curiosity.

On the other hand, it is unfortunate that he ignores the fact that the research process is a continuous one, and that the research process is a continuous one, and that the research process is a continuous one.

What is m?

Microform Review is the only periodical that reviews micropublications for the educational community. In addition, MR reviews micrographics equipment and accessories as well as offering articles on the use of microforms and equipment in the library environment.

Published Bi-monthly. Allen B. Veaner, editor. Price: \$30.00 (\$3.00 additional for postage outside of USA).

m MICROFORM REVIEW
P.O. BOX 1297 / WESTON, CONN. 06880 / USA

History on microfilm

PUBLIC RECORDS OF GREAT BRITAIN.
A SELECTION OF UNPUBLISHED MATERIAL FOR THE STUDY OF WORLD HISTORY FROM THE BRITISH NATIONAL ARCHIVES.
PROGRAMMES 1-5, REPRODUCED 1972-1976.

1976 programme now available. Please request descriptive folder for details of series and classes of PRO records reproduced. Special subscription terms available.

The greater part of the material is taken from the 18th and 19th cent. collections. Series reproduced cover Great Britain, America, Africa, Europe and the Middle and Far East.

GREAT BRITAIN. FOREIGN AND COMMONWEALTH OFFICE.
COLONIAL RESEARCH PUBLICATIONS.

Nos. 1-13, 15, 17-25, London, 1946-1961. 41 fiche \$ 51.25

GREAT BRITAIN. FOREIGN AND COMMONWEALTH OFFICE.
COLONIAL NUMBERED SERIES.

Nos. 1-269, 271-320, 323-352, London, 1924-1980. 756 fiche \$ 943.75

GREAT BRITAIN. CABINET OFFICE.
CABINET MINUTES AND MEMORANDA, 1916-1939.
MINUTES, CAB. 23. 61 reels \$ 1830.00
MEMORANDA, CAB. 24. 216 reels \$ 6480.00

detailed brochures and listings with individual prices available on request

KTO Microform
A Division of Kraus-Thomson Organization Ltd.
FL-9491 Nendeln, Liechtenstein

OXFORD MICROFORM PUBLICATIONS LTD

active in every aspect of scholarly and educational micropublishing offers:

- Microform readers and reader-printers, including THE FUJII Portable microfiche reader and projector—£56.00
- Microform storage and retrieval methods
- Please ask for detailed catalogue of hardware and supplies
- Out-of-print books on microfiche
- Organised comprehensive collections of reprints
- Thematic series with new introductions and indexes
- Archives and source documents
- To facilitate research. Many collections need filming for publication and security. Please enquire about production and terms
- Journals and periodicals both current and back issues
- Monographs, theses and reports in bound 'fiche books'
- Please do let us know of your interest in micro-publishing, we will gladly send you catalogues and discuss developments and projects.

MICROFILM

New system to break old barriers

Eric Winter

Advocates of microfilm are apt to gloss over those factors which still make it an unacceptable medium to many readers. The two most often quoted are that people accustomed to paper and books often dislike handling film and that, despite the very considerable advances made in the design of readers in recent years, there is still no truly portable, personal reader available.

We often sit at a desk or table to read, but not exclusively, and in fact many people rarely if ever read in that attitude. But it is difficult, even with present day microfiche viewers, to read microfilm other than sitting at a table. In addition, most microfiche readers require a light source and an electricity outlet, and inevitably reduces their portability.

Two scientists from Jersey, G. Davies and H. Wertheimer, have for some years been trying to overcome these barriers, and encourage a wider acceptability of microforms. They have developed a microform system which will be available in this country in the autumn. The system is based on a development of microprint, and the micro-image is not on film, but on paper.

The reader weighs only five ounces, will sell at about £5 and needs only a small light. It is compact and can easily be folded and carried in one's pocket or handbag. It consists of two lenses and an acrylic 'reading table'. The lenses are adjustable for eye centres to suit individual eyes, and an optical carrier enables one to adjust the lenses for focus and for lateral and perpendicular scanning of the micro-reduced copy.

The reading table has an automatically adjusting mask to keep out fringe images, and in the production model Davies and Wertheimer have overcome very successfully two problems thrown up by the prototype—making a small lens cover a large reading area without distortion, and preventing the micro-image being blurred by magnified ambient vibrations.

There is a light-weight detachable desk stand which enables one to use the reader seated at a table, but it is basically designed to be held in the hand enabling one to read in an armchair or lying prone. An incidental extra is that the binocular lenses enable the producers to obtain a stereoscopic effect with illustrations.

The micro-reduced copy is at present produced by conventional microphotography with a 22:1 reduction ratio. The image is then transferred from film to paper, by lithography for long runs of 500 plus, but for shorter runs of one to 500 copies can be made on demand as with microfilm by the use of a microprinter.

Microfilm has the advantage of being printed on both sides, and is considerably thinner than microfiche. The paper used has been subjected to scratch tests and found to be highly resistant, thus needing no protective layer. It is ideal for binding into book format and requires no special fiche envelopes or purpose-made binders.

Davies and Wertheimer have recently completed some very successful work with coloured originals, and there appears to be no difficulty in incorporating coloured illustrations in a microfilm book. The system is now undergoing testing use, but from experience gained to date it could well lead to the pocket reader becoming an acceptable and widely used in the future, as the pocket calculator.

Eric Winter is Chief Librarian, Stockwell College of Education.

Dilemma of literary copyright

Bernard Williams

The dilemma of literary copyright confronts us for one simple reason—technology and user needs have changed faster than the law. Producers and consumers of information are still at the stage of groping towards a new mechanism for copyright. Yet time is most certainly not on their side—the interests of both are beginning to suffer. When, if not before, agreement is reached, the segments of what is collectively referred to as the "knowledge industry" will change fundamentally.

Classical copyright is based on the dual premise that authors own, at least for a finite period, the output of their literary endeavours and should, therefore, be rewarded in some way for making their works available, conversely the public has a right to benefit from access to the information.

The mechanism to operate this system of benefits and rewards is provided by the publishing industry and is supported by the law. The operation of the mechanism is protected by current copyright laws (the British version of which is the 1956 Copyright Act) which forbids duplication of the work without the copyright holder's consent either through limited (thus increasingly contentious) "fair" copying by non-profit libraries for the purposes of research or private study.

It is this mechanism rather than the basic concept of benefits and rewards which is now coming into question. The essence of the difficulty is the proposition that sales of printed copies now reflect less and less the actual use being made of the work. Self-evidently academic and other libraries are making increasing use of copiers to meet the needs of their clients, while microforms—with the potential for much cheaper modes of duplication than is possible with copiers—are also making rapid progress. Facsimile transmission and remote access information retrieval systems are on the horizon but may not stay there much longer.

Undoubtedly copying (in the collective sense) is making a major contribution to the efficiency of our communications systems. Obvious merits include precision; file integrity; savings on multiple holdings and savings on the cost of loan systems and return postal journeys. Furthermore, unlike loans, copying should be self-financing since libraries are legally required to charge the economic cost of the copy.

Publishers—especially those in the United States where litigation is in progress between a medical publisher and the United States Government in a case involving the National Library of Medicine—are now becoming extremely concerned about the quantity of copying taking place in libraries and claim that the visibility, particularly of many specialized publications is being threatened.

Conversely, libraries counter-claim that copying does not materially affect sales and that, for example,

the chances of a given article being copied, even in a national depository, are not high. Even more serious implications of demand for copies; reference "publication" interest, might be arranged via a deposit copy of an author's paper plus a few publications (abstracts?).

Elsewhere the emphasis has been on illegal copying. In 1975 the Wales found itself on the receiving end of litigation when an agent-vocateur made two copies of a story by Frank Moorhouse as a coin-operated copier. As a result, much more controls on microfilm, well on the way to effecting the apparent savings in the self-service principle.

But it is easy to argue that the law is failing to protect the interests of the publisher. It is not, however, the law which is the problem. What, after all, is the law? The copyright law is not the one-copy principle of front fair copying law?

The technology to produce multiple copies, or to incorporate serial in an information retrieval system serving users on demand is readily available. We are, therefore, exploiting it? The copyright law is more apparent than real: neither users nor publishers handle in practice the requests for consent except by petty payments.

The essential problem is that of decentralized provision of information. The link by which information providers can be recommended to use of their material (the argument that many academics write for a time rather than profit incentive) is the fact that their publishers will be certainly be concerned with a return on investment.

Yet the rapid and efficient copying and charging of copying transactions (a sort of literary credit card system) is well within the capabilities of modern technology. Such a system would be just to information providers, and could also eliminate the form-filling involved in copyright infringement declarations.

Prototypes of such systems are now in operation, and at least one is in operation for a number of years, which could provide guidelines for a national and ultimately a world system.

Would academics tolerate a system which measures their productivity as much in terms of copying and retrieval statistics as the output of printing presses? They might—especially if an alternative lies in paying for publication via page charges—a system becoming increasingly common where in the world.

Bernard Williams is director of the National Reprographic Centre in documentation, Hatfield Polytechnic.

MICROFORM PUBLICATIONS

ARCHAEOLOGY
Archives of Maya archaeology

ARCHITECTURE
Adam drawings in the Soane Museum on colour and monochrome microfilm

Royal Commission on Historical Monuments: Inventories

ART

Art exhibition catalogues
A continuing series which now contains more than 2500 catalogues on microfiche

Catalogues of the art exhibition catalog collection in the Art Library of the University of California at Santa Barbara
Published on microfiche from computer tapes

Art periodicals on colour and monochrome microfilm

DRAMA

BBC Radio
Author and title catalogues of transmitted drama, poetry and features 1923-1975

BBC Television
Author and title catalogues of transmitted drama 1936-1975

HISTORY

BBC Radio: Wartime news broadcasts 1939-1945

Political and personal cartoons and satires 1320-1832, in the British Museum

Publications of the English record societies 1884-1957

Diaries of Beatrice Webb and satires 1320-1832, in the British Museum
Publications of the English record societies 1884-1957

LITERATURE

Archives of British Publishers
George Allen, Richard Bentley, Cambridge University Press, Kegan Paul, Henry S. King, Longman, Elkin Mathews, Grant Richards, George Routledge, Swan Sonnenschein, Trench, Trubner

Victorian giftbook and literary annuals
European twentieth century literary periodicals

Russian Futurism 1910-1918.
Poetry and manifestoes on colour microfiche

STATISTICS

British Government publications containing statistics 1904-1965

Board of Trade: Economic Surveys 1921-1961

European official statistical series 1841-1965

Please call or write for our general catalogue or brochures on these titles

CHADWYCK-HEALEY
21 Bateman Street
Cambridge CB2 1NB
telephone: 0223 69333

Alternative to rising book costs

Patricia Santinelli

administration and production given the kind of market that exists at the moment.

Chadwyck and Healey, of Cambridge, who regard microfilm as just another medium for the reproduction of specialist academic material, say that specialist publishers cannot survive in the British market.

Chadwyck and Healey regard their British Publishers and Art Exhibition Catalogues series as their two most important and original publications. Putting the art exhibition catalogues on microfiche has enabled better reproduction of half-tone than offset litho print, and the company have obtained rights to most of the national museums of France, American galleries such as the National Gallery of Art, and many German, Italian and Dutch galleries.

Harvester Press, who are involved in both conventional and micro-publishing, think that there will be sudden activity from conventional publishers with microfilm, but the financial rewards. "Only if large amounts of microfilm exist in the operation viable," said Mr John Spiers, managing director.

"At the moment there is only enough work to go round existing microfilm publishers."

"It is more likely that a new relationship will develop between conventional publishers and micro-publishers. For example, we have a contract with Longman to market on a worldwide basis the microfiche version of Keating's Contemporary Archives."

One of Harvester's new projects on sale in November is a series of 220 silver halide positive microfiche entitled *Speeches of World Leaders*. This consists of the speeches, press conferences, interviews and other statements of 27 world leaders during 1975.

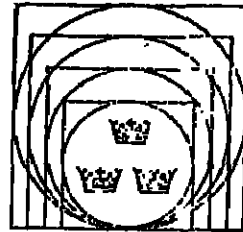
Assessment of the kind of material that should be microfilmed is carried out in different ways by micro-publishers. EP Microform, an editorial advisers in development fields who suggest good areas to microfilm and possible sales outlets. They also do a comprehensive market survey.

But the recent Report of the University Grants Committee Working Party on Libraries has done nothing to encourage librarians to purchase more microforms by advocating the concept of a self-renewing library of limited growth.

Surprisingly, the sale of fiche or film in bookshops is less dependent on user resistance than the establishment of a proper discount system between micro-publishers and booksellers. At the moment a vicious circle exists, according to Mr Tony Hall, promotions manager of the Economist Bookshop. "Micro-publishers say that they are not going to give a discount to booksellers because they are not doing anything to promote microform titles, and booksellers are saying that they will not unless they get a discount."

Mr Hall believes it would be better if the retailer and the micro-publisher got together and cooperated rather than the producer going direct to the buyer. In this way they would increase the whole lot of customers and the establishment of a proper discount system would make the end product more affordable and more expensive.

Oxford Microfiche Editions



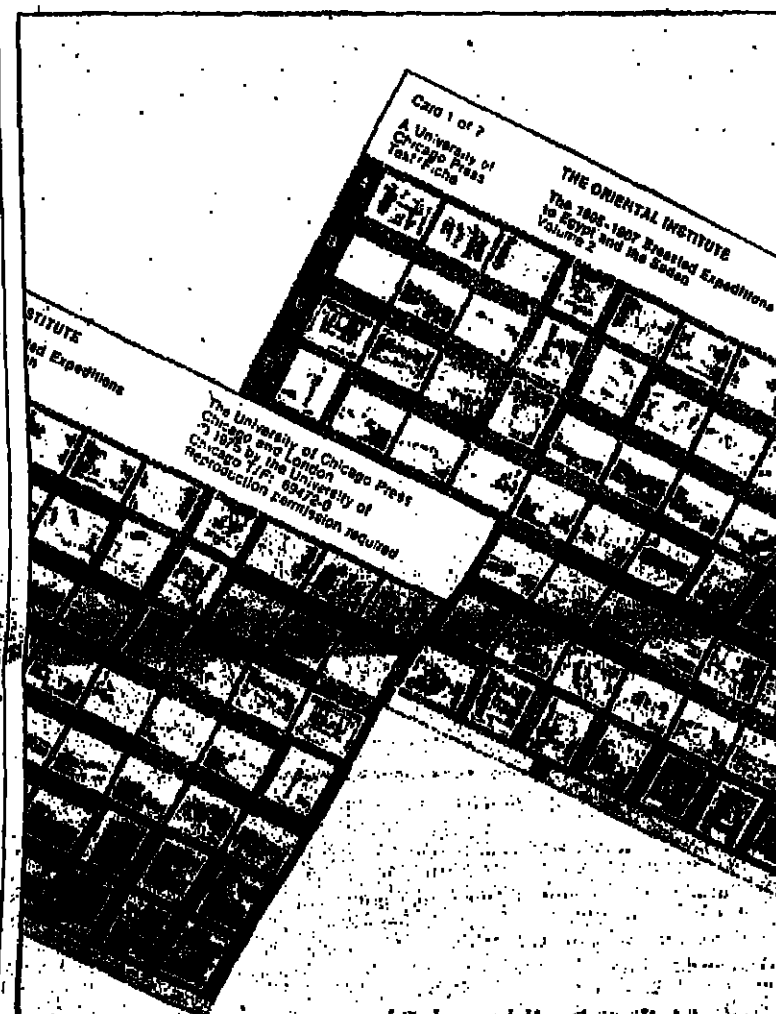
Oxford University Press is offering in microfiche editions a special reissue of selected out-of-print books from its backlist. Each book can be purchased separately, and is reproduced on 98-frame, 105 x 148mm microfiches at a reduction of 24:1. Archival permanent silver halide film is used throughout.

The first series of Oxford Microfiche Editions concentrates on two subject areas, History and English Literature, and individual books have been selected by scholars in each field. For a detailed list of these titles, write to Oxford Microfiche Editions, Oxford University Press (CMP), Ely House, 37 Dover Street, London W1X 4AH.

Each book is priced on the basis of the number of microfiches needed to reproduce it, at a rate of £1.10 per individual microfiche. All copies will be supplied post free, and may be ordered direct from OUP or from booksellers.

The format used in these microfiche editions has become widely accepted in the United Kingdom and is that adopted by the National Micrographics Association in America and by the Committee on Scientific and Technical Information. It is suitable for use with most available microfiche readers.

Oxford University Press



text/fiche publication division

the university of chicago press
126 buckingham palace road
london sw1

